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## 5. The Early Bronze I–III Ages

Graham Philip

### Introduction

The following discussion is not intended as a history of Early Bronze Age studies in Jordan (for this see Geraty and Willis 1986). Neither is it a review of the Early Bronze Age in the southern Levant as a whole. For example, the influence of Egypt upon developments in the southern Levant is not discussed because the relevant evidence comes almost entirely from Palestine (van den Brink 1992; Harrison 1993; Levy 1995a). I have tried to go beyond a purely descriptive account, and have drawn upon a range of current theoretical models to challenge some traditional interpretations, and highlight problematic areas, in the hope that others may feel ready to approach these issues from new directions.

### Early Bronze Age studies in the southern Levant

#### *Origins of the city-state model*

There is no published discussion of the Early Bronze Age from a specifically Jordanian perspective. All published accounts dealing with the southern Levant are based upon the data from Palestine, with Jordan regarded simply as its eastern extension. This is in spite of clear geographical and environmental contrasts between the two areas.

Scholars have generally considered the Early Bronze Age within a broadly neo-evolutionary framework (Richard 1987; Mazar 1990; Ben-Tor 1992; Esse 1989a, 1991; Finkelstein 1995a). The traditional interpretation sees increasing complexity during EB I, leading to the appearance of a stratified society during EB II–III. In regional terms, this takes the form of a series of broadly homologous EB II–III city-states, each based around a walled urban centre. These are sometimes viewed as 'peer-polities' (Finkelstein 1995a). This phase of complexity is followed by a period of collapse at the transition from EB III to EB IV (see Esse 1989a: table 1; Palumbo, this volume).

It is important to understand that the notion of Early Bronze Age city-states in the southern Levant became entrenched in the literature (e.g. Albright 1949: 74) many years before scholars began to debate the material correlates of urbanism and stratified societies (Adams 1966; Flannery 1972; Service 1962, 1975; Wright 1977). As a result, the presence at these sites of the classic characteristics of state societies—regional polities, social stratification, elite control of the economic base, administrative systems—was never actually demonstrated; it was simply assumed.

In fact, the idea of Early Bronze Age city-states appears to have derived from two sources. Firstly, Wright's (1961: 81) remark that the Early Bronze Age represented 'the beginning of the city-state system' makes it clear that Early Bronze Age urbanism was really a projection back in time of the situation in the Late Bronze Age as revealed by documentary sources that indicate the existence of small city-states, based around the main urban centres (Moran 1992; Bunimovitz 1995: 326). This model also appears to fit the Middle Bronze Age data (Ilan 1995: 301), and scholars have assumed a broad equivalence between the Early Bronze Age walled settlements and the urban communities of the second millennium BC (Finkelstein 1995a: 55; de Miroschedji 1999: 12). However, the EB III is separated from the Middle Bronze Age by a gap of several centuries, characterized by a very different form of socioeconomic organization (Palumbo, this volume). There is, therefore, no reason to assume continuity of social or political organization between the two periods.

The second source was the widely held belief that developments in the southern Levant should comprise a parallel, if smaller scale, version of processes of urbanization and state development taking place in contemporary Mesopotamia and Egypt (Wright 1961: 81; Kenyon 1979: 84–86). In this regard, Ben-Tor's (1992: 86) analogy that places the southern Levant at the edge of a pond, receiving the outer ripples of a stone (urbanism) thrown into the south Mesopotamian centre, is particularly revealing. There existed, therefore, an expectation that urban settlements existed,

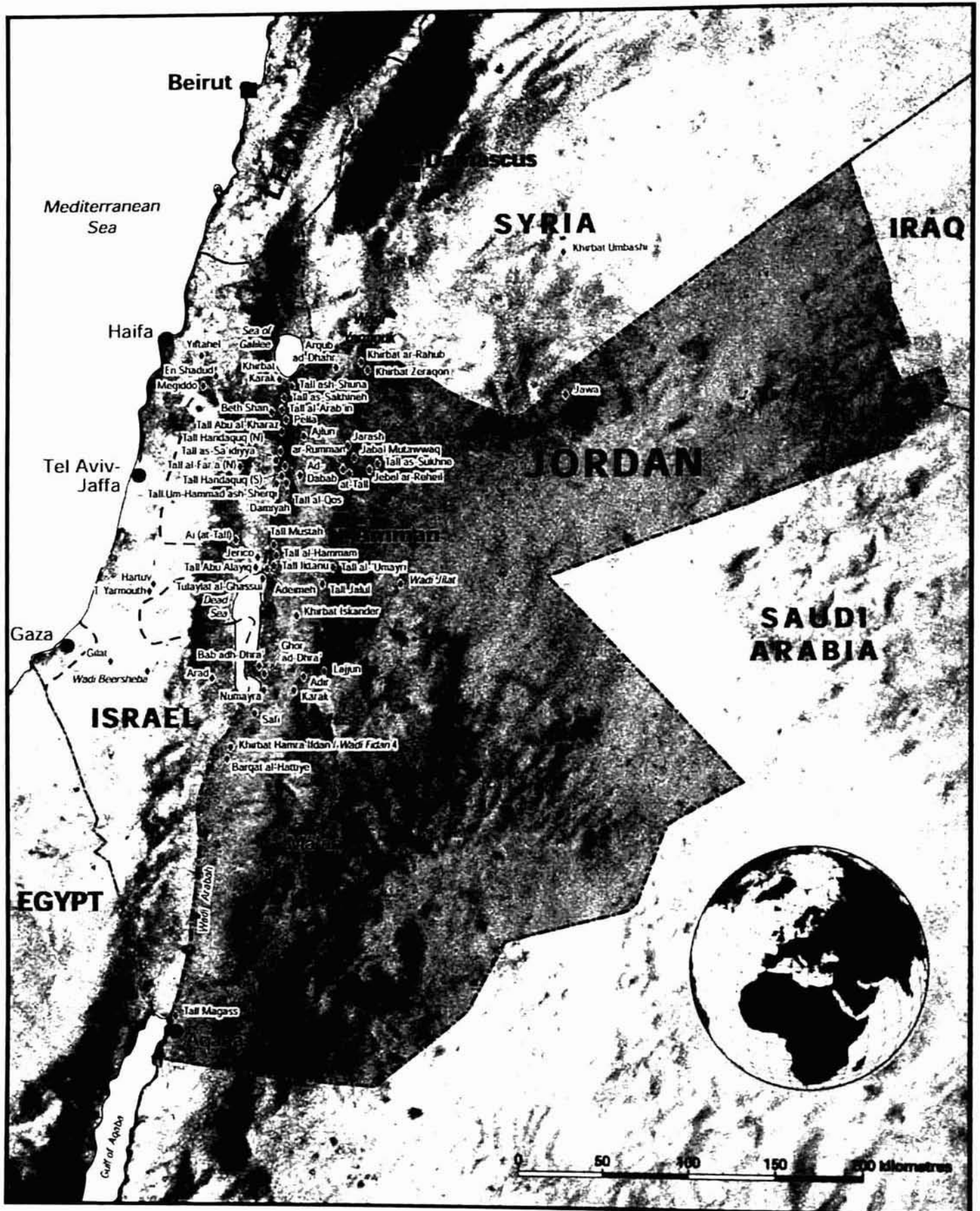


Figure 5.1. Map showing location of Early Bronze Age sites in Jordan.

one that was readily satisfied by the presence of walled sites.

### *Evidence for the existence of city-states*

While scholars working within the framework of traditional Palestinian 'historical' or 'biblical' archaeology (e.g. Kenyon 1979; Mazar 1990) appear to have taken for granted the 'fact' of Early Bronze Age city-states, others have sought to situate Palestinian city-states within a broader theoretical debate, and to identify specific correlates of complexity and urbanism within the regional data (Esse 1989a: fig. 1; de Miroschedji 1989: fig. 1). These include the presence of public architecture, including defensive and administrative structures, evidence for the growth of social, political and settlement hierarchies, and various forms of economic specialization including both crafts and subsistence practices.

Esse (1989a), for example, argued that Early Bronze Age Palestine represented an instance of Secondary State Formation (Price 1978). Thus, the development of small-scale polities controlled by local elites took place in response to connections with the more developed state of Egypt, which presented opportunities for incipient local elites to enhance their power by exploiting strategic economic niches. The 'urban' centres thus constituted regional foci of specialization and control. Such a coincidence of political and economic power is widely assumed in neo-evolutionary literature (e.g. Flannery 1972). The image of the Early Bronze Age city-states as peer polities (Finkelstein 1995a, after Renfrew and Cherry 1986) paints a picture of hierarchical, territorial political and economic units each organized around a walled central place. Once the reality of such polities was accepted, their existence provided a ready-made explanation for a host of socioeconomic developments, such as agricultural intensification, the construction of major public architecture and decreasing regionalism in material culture, topics which have, therefore, rarely been examined individually.

The reality is less clear-cut, however. De Miroschedji (1989: 73-74) has stressed the diversity of developmental trajectories in the different regions of Palestine, a point amplified in a study of settlement data by Finkelstein and Gophna (1993). Secondly, de Miroschedji (1989: 70-71) observes that the patterning of some aspects of material culture, the production and distribution of pottery and chipped stone in particular, suggests that some areas of the economy operated at a

spatial level far more extensive than that of individual polities. Both points raise doubts about the reality of the existence throughout the southern Levant of a series of homologous city-states each acting as a regional focus for political, economic and ritual power. This review of the evidence from Jordan presents an ideal opportunity to devise an alternative analytical framework for the study of the Early Bronze Age in the southern Levant.

### *Critique of the city-state model*

There are clear discrepancies between the empirical data from the Early Bronze Age southern Levant and the criteria taken as indicative of complex urban-based polities elsewhere in western Asia. Major problem areas include:

- a. *Urbanism.* The small size of many walled settlements indicates concentrations of population well below those generally understood as indicative of urban communities. Territorial populations too appear significantly below the absolute levels generally associated with the existence of states (Falconer 1987, 1994; Joffe 1993).
- b. *Settlement structure.* The presence of regional settlement hierarchies is generally seen as a necessary condition for the existence of states (Flannery 1972: 412; Wright 1977: 383). These cannot be demonstrated convincingly using the settlement data from the Early Bronze Age southern Levant (Falconer and Savage 1995; Harrison 1997).
- c. *Administrative and control systems.* Many models of state formation have stressed the importance of administration to complex organizations (Flannery 1972; Wright and Johnson 1975). However, in the southern Levant material indications for bureaucratic organization, such as writing or sealing systems designed to track commodity flows, are conspicuous by their absence (Joffe 1993).
- d. *Elites.* Sociopolitical hierarchies are viewed as an essential component of states (Service 1975; Wright 1977). However, the forms of evidence considered indicative of such hierarchies elsewhere in southwest Asia—large public buildings with reception facilities and service areas, a highly differentiated burial record, the presence and uneven distribution of 'wealth' items—are absent in the southern Levant. (A large public building, 'Palace B', recently excavated at Tel Yarmouth has been compared to 'palaces' from



other regions of western Asia [de Miroschedji 1999: 10-11]). However, as demonstrated by the manner in which cylinder seals were used (see [p. 214]), the existence of a degree of formal similarity between material from the southern Levant and that from Mesopotamia is not in itself evidence of functional equivalence. Moreover, this building dates to a late stage of EB III, and cannot be used to argue for the existence of either city-states or palace-based elites throughout the EB II-III period.)

Recent studies (e.g. Joffe 1993) have sought to contextualize the model by developing concepts of complexity and urbanism suited to small-scale societies, arguing that, seen in terms of local environmental and subsistence conditions, Early Bronze Age walled settlements represent significant concentrations of both population and human energy. In this usage, the local 'urban' units are seen as agglomerated, nucleated and differentiated settlements, representing not a distinct 'tier' in a hierarchy, but rather lying at one end of a continuum of forms of settlement and organization (Joffe 1993: 64-65). 'Palaces' are re-interpreted as elite residences, although features such as defensive walls and cultic structures are still accorded a high priority in terms of understanding the political and economic roles of these sites. While this may well prove a fruitful approach, it requires us to posit a quantitatively different form of 'urbanism', for which material correlates and conceptual frameworks have yet to be established. We may do better simply to abandon notions of cities and states altogether and approach the data from other perspectives.

### *Alternative interpretations*

#### *The chiefdom model*

The obvious alternative is the chiefdom, which has proved a useful heuristic device for the analysis of ancient societies, and which has recently been applied to the data from Chalcolithic Palestine and a range of fifth through third-millennium BC societies from other parts of the Near East (Levy 1986, 1995a; Stein and Rothman 1994). This form of political organization is characterized by a modest degree of social and economic stratification and involves regional populations in the thousands or tens of thousands (Johnson and Earle 1987; Earle 1987, 1991), figures that appear appropriate for Early Bronze Age Jordan. However, the

concept originated as one stage in a neo-evolutionary sequence of societal 'types' (Service 1962). As a distinct set of organizational characteristics was attributed to each stage, this can result in a lack of sensitivity to the subtleties of individual historical trajectories (Crumley 1987; Paynter 1989; Yoffee 1993), suggesting that a less rigid analytical tool may be required.

#### *Middle-range societies*

The notion of middle-range societies, developed by Feinman and Neitzel (1984) on the basis of ethnographic data, was designed to conceptualize a spectrum of organizational forms intermediate between mobile gatherer-hunter groups and bureaucratic states, and thus subsumes the chiefdom. Many of the characteristics of middle-range societies appear germane to the Early Bronze Age data from Jordan; political organization is highly variable and there is a clear correlation between the total population of a society and the number of levels of political decision-making. Ethnographic data indicated that no groups including less than 4000 members (a level unlikely to have been attained by any of the walled sites in Jordan, see below) revealed more than two levels of decision-making (Feinman and Neitzel 1984: 69). Methods of transferring leadership positions vary considerably, although neither purely achieved power nor inflexible hereditary forms are common. There is, however, a tendency for positions to remain within certain family lines, a point perhaps connected with inherited economic advantage. However, the evidence revealed a high degree of administrative flexibility, and economic inequalities did not always equate to political rank (Feinman and Neitzel 1984; Hastorf 1990: 148). Recent work in western Asia and elsewhere indicates that significant areas of economic activity could exist outside the operational arena of political power (Stein and Blackman 1993; Wattenmaker 1994; Potter and King 1995; Levy 1995), and there is now a trend towards approaches that seek to 'unpack' the various components of complexity, political and economic structures in particular (Netting 1990). Given the variety of organizational forms characteristic of middle-range societies, Feinman and Neitzel (1984) suggest that the model can be best employed as a means to explore the interrelationships between different aspects of the given society, by using the archaeological data to investigate key dimensions of social organization.

### Staple finance

D'Altroy and Earle (1985) have defined two organizational modes that describe the economic basis of political power in chiefdoms, wealth finance and staple finance. In the former, political power is based upon the control and manipulation of access to valued substances or products, something for which Early Bronze Age Jordan has produced little evidence. More relevant perhaps is staple finance in which power derives from the control and manipulation of the products of subsistence production, an organizational feature generally associated with societies characterized as agricultural, collective and territorial, and which may prove of value in terms of the southern Levant. Archaeological criteria by which staple finance might be recognized include evidence for intensified agricultural production, and the availability of storage and transport facilities (Schwartz 1994; Stein 1994).

### Heterarchy

Crumley (1995: 3) observes that the 'almost unconscious assumption of hierarchy as order... has made it difficult to imagine, much less recognize and study patterns of relations that are complex but not hierarchical'. The idea of hierarchy as order has underpinned the city-state model, and has structured most discussions of the nature of Early Bronze Age societies in the southern Levant, although the existence of hierarchy cannot be readily demonstrated through the data (see below). The problem may lie not with the evidence, but in the appropriateness of the assumptions integral to a hierarchical model. In fact, significant elements of social and economic complexity can arise from non-hierarchical relationships, for example, those between groups differentiated on the basis of household, age or gender (Paynter 1989). Building upon Crumley's ideas, instead of seeking to explain the evidence in terms of a single organizational principle, we should think in terms of overlapping, and at times contradictory, organizational forms, a situation that she has termed *heterarchy* (Crumley 1987, 1995).

Crumley (1979: 144) defines a heterarchical system as one in which 'each element is either unranked (relative to other elements) or possesses the *potential* for being ranked in a number of different ways, depending on systemic requirements'. In this light, we should view intergroup relations, including structures of power and domination, not as fixed within an overarching framework but as transient and contingent. Thus, we

must reject the simple unifocal perspective implied by elite-dominated regional centres in favour of altogether more complex forms of organization in which different types of relationships (e.g. cultic, exchange, kinship) may cross-cut each other and/or be organized along quite different lines.

The idea of heterogeneous communities has found favour in recent research on Mesopotamia (Pollock 1992; Yoffee 1993), but the concept appears particularly well suited to regions where there is clear evidence for the exercise of power on a considerable scale, but where the data does not provide the traditional indicators of elite-driven state societies, such as Cyprus (Keswani 1996) or the Levant. In contrast to the unifocal perspectives implied by city-state or chiefdom models, this chapter will treat Early Bronze Age Jordan as heterogeneous, marked by multiple coexisting sources of power.

### Complexity and the corporate village

Archaeologists working in the Levant have traditionally contrasted 'urban' sites, characterized as large diverse centres for the provision of specialist services, with villages, seen as small homogenous units supplying primary products, but dependent upon urban centres for specialist goods and services. However, as Schwartz and Falconer (1994: 2) observe, villages are both more complex, and socially and economically diverse, than has generally been assumed. The notion of village complexity appears to offer a potentially useful way of comprehending Early Bronze Age Jordan.

A potentially valuable insight into the nature of Early Bronze Age communities is offered by the corporate village, an organizational form identifiable in Late Bronze Age documentary sources from the Levant dealing with agricultural communities (Magnez-Gardiner 1994, with references; Schwartz and Falconer 1994). In such communities land was held in a variety of communal forms—within a single family, between several families, as village lands—and external demands for tax and labour obligations were met jointly. The apparent inconsistency between the clear evidence for coordinated large-scale projects (e.g. defensive walls) and limited indications for the existence of institutionalized elites in the Early Bronze Age can be explained by the proposition that investment activities requiring cooperation beyond the level of individual households were undertaken on a corporate basis by a variety of organizational units, including kinship groups and the entire community. It is worth



making the point that, in the absence of elites focused upon conspicuous consumption, village communities may have been able to retain sufficient surplus production to finance investments in valuable communal infrastructure, such as agricultural and defensive works and collective burial monuments. This model, which shares certain features with Renfrew's (1974) idea of 'group-oriented chiefdoms', appears to offer the basis of a new approach to the evidence from Early Bronze Age Jordan.

The key to maintaining such a system over time, and avoiding a fatal transition towards institutionalized inequality, appears to lie in what has recently been termed a 'corporate power strategy' (Blanton *et al.* 1996), through which power is distributed across different groups and sectors within society in a heterarchical fashion. An appropriate 'group-centred' ideology combined with effective networks of resistance to potential attempts by particular individuals or interests to monopolize power would contribute to the long-term stability of the system. This is not to argue that such systems were egalitarian (Sweet 1960, cited in Schwartz and Falconer 1994: 6). However, disparities take the form of differential ownership of land, livestock and personal reputation rather than conspicuous consumption, all hard to detect in the archaeological record, and reminiscent of staple rather than wealth finance.

Following Renfrew (1974) and Blanton *et al.* (1996: 6-7), archaeological correlates of a corporate village organization might include defences, irrigation works, certain categories of public building (but not palaces), group-centred burial monuments, a lack of 'prestige' goods in spite of technological innovation in the production of utilitarian artifacts, and minimal evidence for the systematic differentiation of individuals. These criteria, which centre on the deployment of wealth in projects of value to the community, rather than its consumption as a facet of elite lifestyles, appear highly relevant to the Early Bronze Age data from the southern Levant.

Nor is the corporate village model a 'static' phenomenon, unable to account for diachronic change. Evidence from later periods (Joffe 1993: 48 with references) suggests that a village would have included elements from several different kinship-based groups, showing differing degrees of wealth, prestige and extra-village connections. The shifting pattern of cooperative and competitive interaction between these groups would have provided an important internal dynamic for change. In addition, Magness-Gardiner (1994: 44-45) has noted that successful units will tend

to expand at the expense of the less successful ones, leading to the development of villages of greater and lesser importance, and a diversity of village forms. The suggestion that walled settlements constituted a fairly heterogeneous group is consistent with Finkelstein's (1995b: 79-86) suggestion that the site of Arad in southern Palestine should be attributed to the settlement of local pastoralist groups.

Clearly, damage to the agricultural base, or other localized problems, would directly affect a community's ability to 'reinvest', and could result in potentially rapid changes in fortune. Thus, in a system in which the individual corporate village constituted the highest order organizational unit, we might expect a relatively stable region-wide structure, but a high degree of instability in the case of its separate components. In this light, the evidence for significant discontinuities in the occupational record of individual sites and regions (Portugali and Gophna 1993; Gophna 1995a) conforms to the expectations of a dynamic corporate village model.

## Review of the evidence

### Chronology

#### *The establishment of absolute chronologies*

An Egyptian historical chronology based upon the sequence of royal dynasties exists from the end of the fourth millennium BC. In theory, this permits the accurate dating of artifacts from certain Egyptian contexts, often the graves of named individuals. Thus, material of Egyptian origin, when recovered at sites outside Egypt, or Levantine artifacts from reliable Egyptian contexts, provide synchronisms that allow the correlation of Levantine archaeological deposits with Egyptian historical chronology. Limitations of this method include the rarity of finds of Egyptian origin in Jordan, and the possibility that these may have entered the archaeological record long after the date of their production.

Historical dating provides good evidence only for the end of EB I. A growing corpus of Egyptian material, including pottery and *serekhs*, several of which can be read as Narmer, first king of Dynasty I, have been recovered from late EB I contexts in southern Palestine (Brandl 1992; Levy 1995a: 31; van den Brink 1996). These provide a firm correlation between the beginning of Egyptian Dynasty I and the end of EB I.

The beginning of EB II can be equated with a relatively early point within the Egyptian First Dynasty,

as vessels of forms diagnostic of EB II first appear in the tomb of the Pharaoh Djer. However, Egyptologists' dates for the beginning of the First Dynasty have ranged between c. 3100 and 2900 BC (see Kantor 1992; Wilkinson 1996: 9–15 for details). Current Egyptological opinion appears to favour a date between 3100 and 3000 BC for the beginning of Dynasty I (Hendrickx 1996: table 9; Wilkinson 1999: 27), which would place the beginning of EB II at the very end of the fourth millennium BC, in good agreement with the radiocarbon evidence (see below).

### EB III, 2700–2350 BC

It is generally believed that the beginning of EB III equates with the Egyptian Third Dynasty, so the EB II/III transition has been traditionally placed c. 2700–2650 BC (Stager 1992: 41; Joffe 1993: 68), although this should be regarded as no more than an estimate (see below). The linkage with Egyptian chronology is looser than in the case of EB II because many of the Levantine ceramic forms found in Egyptian Third Dynasty and later contexts have a relatively wide duration in the Levant (see Esse 1991: 103–16; Stager 1992: 37–39 for discussion). Stager gives correlations between EB II–III Palestine and the Egyptian dynastic sequence (1992: fig. 16).

### Radiocarbon dating

Despite some initial scepticism, radiocarbon dating is assuming an ever greater importance in the construction of chronologies in the region (Levy 1992a; Gilead 1994; Joffe and Dessel 1995). It has two key advantages over a chronology built upon historical synchronisms:

1. The method allows the extension of absolute dating to a period well before the upper limit of the Egypt historical chronology; absolute dates for the EB I period are dependent upon radiocarbon.

2. Radiocarbon dates are taken on decayed organic material, which, unlike Egyptian imports, can be recovered from most sites.

In combination, the two methods now provide a reasonably secure absolute chronology for the main phases of the Early Bronze Age.

A growing body of radiocarbon dates indicates that the Chalcolithic period terminates in the first few centuries of the fourth millennium BC (Joffe and Dessel 1995; Carmi *et al.* 1995). Most studies have placed the beginning of the Early Bronze Age around 3500 BC (Esse 1991; Stager 1992: 40; Joffe 1993; Gophna 1995), although unpublished radiocarbon dates from recent excavations at Tall ash-Shuna suggest that in northern Jordan at least the EB I period began no later than 3600 BC.

### Radiocarbon dates from Jordan

Although the corpus of Early Bronze Age I–III radiocarbon dates from Jordan is growing rapidly, many dates suffer from poor documentation of the samples and the archaeological contexts from which they were obtained, which can render them hard to interpret. Therefore, the selected groups here have well-documented dates from clear chronological horizons.

A series of dates from early EB I deposits from Tall ash-Shuna fall between 3650 and 3350 BC; those from the later EB I deposits fall between 3400 and 3000 BC, while a group of late EB I/EB II dates from Tall Abu al-Kharaz (Fischer 1998: 219–20) cluster between 3350 and 2900 BC. Five dates, including four from charcoal and one from grape seeds, collected from the exclusively EB III site of Numayra (Rast and Schaub 1980: Table 3) fall between 2900 and 2500 BC. All dates discussed are expressed at two standard deviations and were calibrated using version 2.18 of the OxCal calibration programme (Bronk Ramsey 1995) (Table 5.1).

### The establishment of relative ceramic chronologies

Many sites lack both reliable radiocarbon dates and Egyptian material. In these cases, pottery is the prime dating indicator. On the whole, Early Bronze Age pottery from Jordan is comparable to that from Palestine, the ceramic chronology of which has been the subject of regular discussion, founded upon the studies of Wright (1937) and Amiran (1969); a more recent summary has been provided by Stager (1992).

Period	Absolute dates BC
Early EB I	3600–34/3300
Late EB I	34/3300–31/3000
EB II	31/3000–2850/2750
EB III	2850/2750–24/2300

Table 5.1. Estimate of absolute dates for EB I–III, based upon calibrated radiocarbon measurements.



Developments in EB I and II Palestine are described by Joffe (1993), while more detailed treatments of pottery from northern (Esse 1991; Greenberg 1996) and southern areas (Fargo 1979; Seger 1989) are also available. Early Bronze Age ceramics from the southern Levant have been treated extensively in a recent collection of papers (Philip and Baird 2000). The discussion that follows concentrates upon those aspects of the material directly relevant to an understanding of developments in Jordan, or where the Jordanian evidence may require modification of conventional wisdom.

## EB I

While the definition and nomenclature of the EB II and III periods have been reasonably uncontentious, the terminology and definition of EB I has been a source of scholarly disagreement. The underlying reason for this is that EB I pottery differs markedly from region to region. The traditional two-phase terminology of EB IA and IB for this period (Stager 1992) is avoided here for two reasons:

1. Material tends to be assigned to one or other of these categories on the basis of its place within a localized ceramic sequence. However, in the absence of radiocarbon dates it is not clear that material termed EB IA or IB in one area is necessarily contemporary with that described by the same term elsewhere.
2. Increasingly refined chronological control has meant that in southern Palestine some scholars now recognize three (Stager 1992: 31-32) and others four phases of EB I (Amiran and Gophna 1992: Table 1; Levy 1995a). Until reliable correlations have been established between regional pottery sequences, it seems better to simply allocate material to an earlier or later position within its own regional sequence.

Two main phases of EB I have been recognized in north Jordan. Early EB I is defined on the basis of 'Grey Burnished Ware' and what have been termed 'Impressed-Slash Wares' by Stager (1992: 29-30), a term that appears to be extended (wrongly) by some to include the later Tall Umm Hammad Ware (e.g. Joffe 1993: 39). Late EB I is characterized by vessels bearing what has been termed 'Band Slip' or 'Grain Wash' decoration.

In southern Palestine, early EB I is marked by the use of a red paint on white wash, which appears to

develop later into the so-called 'Line Painted Group' or B-Tradition, sometimes also termed 'Line Group Painted Ware' (LGPW), characteristic of late EB I in central Palestine and Jordan (Schaub 1982; Joffe 1993). While LGPW is well known from sites in south-central Jordan, where it appears in the later EB I, early EB I material, as known from Bab adh-Dhra', forms a distinct regional group (Schaub 1987). At present, there is no Jordanian counterpart to the large quantities of Egyptian pottery that are reported from late EB I assemblages from southwestern Palestine (Stager 1992: 32-33; Brandl 1992).

A refined picture of regional ceramic chronology is dependent upon long stratified sequences, such as those from Tall Umm Hammad (Betts 1992) and Tall ash-Shuna (Baird and Philip 1994) in the Jordan Valley. These sites have demonstrated the length of the EB I period and the existence of two chronologically distinct ceramic phases at each site, while the contrasts between the two assemblages highlight the degree of ceramic regionalism. Additional good EB I material has been excavated at Bab adh-Dhra' in the southern Ghor, and recently at nearby as-Safi (Schaub and Rast 1989; Waheeb 1995), revealing the existence of at least one distinct ceramic region located east and south of the Dead Sea. In this case, however, the bulk of the published data comes from tombs rather than stratified deposits, and so cannot provide detailed material for construction of an interregional ceramic chronology.

## EB II

This period witnesses a decline in the earlier ceramic regionalism, with pottery becoming increasingly homogenous throughout the southern Levant. While this makes it relatively easy to recognize EB II material, it is not yet possible to correlate EB II sequences at different sites to provide an internal ceramic chronology for the period. Thus, there exists no clear basis for recognizing internal subdivisions within EB II, other than the relative stratigraphic positions of groups of material at individual sites. In Palestine, two main EB II ceramic regions, north and south, have been defined (Stager 1992; Joffe 1993). In general, the northern region is characterized by the presence of vessels in a wide variety of shapes made in highly fired 'Metallic' Ware, and the southern by red-slipped and burnished vessels made from softer fabrics (Greenberg and Porat 1996). Provisional evidence suggests that these divisions are broadly applicable to Jordan, although we currently have no way of determining whether the

appearance of Metallic Ware was synchronous at all sites. Lacking the independent verification of radiocarbon dates, the assignment of deposits to EB II on the basis of the presence of Metallic Ware has a certain circularity. In particular, we have little idea as to how long Metallic Ware remained in production, or how it was distributed, and it is not impossible that the key indicator of EB II was a short-lived, or unevenly distributed, style of pottery.

Recently, the validity of traditional ceramic distinctions between EB I and II has been called into question. Work at Tall Abu al-Kharaz has revealed that jars bearing Band Slip decoration and vessels in Metallic Ware, hitherto believed diagnostic of late EB I and EB II respectively, occurred together on the same floors (Fischer and Toivonen-Skage 1995: 587, figs. 3, 4; Fischer 2000), indicating their contemporaneous usage. The additional observation of storage vessels bearing a style of painted decoration very similar to that known as Band Slip, in EB III contexts at Khirbat az-Zaraqun (Genz 2000), confirms that this style of pottery can no longer be taken as diagnostic of late EB I occupation alone. This may require a reconsideration of settlement pattern data, as the presence of Band Slip decoration is likely to have been a major factor in the classification of surface-collected material to late EB I.

### EB III

The beginning of EB III in the north Jordan Valley is generally believed to be indicated by the appearance of the distinctive Khirbat Kerak ware (Stager 1992: 39), although there may be an element of circular reasoning in this reconstruction (Philip 1999: 34). Whatever the case, its restricted spatial distribution (Esse 1991: 138–40, fig. 25) renders Khirbat Kerak ware unsuitable as a universal indicator of EB III. While abundant at Tall ash-Shuna (Leonard 1992), it is rare on the Jordanian plateau (Mittmann 1994: 10), and even in the Jordan Valley becomes sporadic south of Beth Shan (Esse 1991: 138–39). However, sites located as far south as Bab adh-Dhra' show particular bowl forms that appear to have been influenced by features of Khirbat Kerak ware, which should indicate an EB III date (Schaub and Rast 1989: 439).

Khirbat Kerak ware apart, substantial groups of (typologically) EB III pottery come from three sites, namely, Bab adh-Dhra', Tall al-'Umayri and Khirbat az-Zaraqun (Schaub and Rast 1989; London 1991; Mittmann 1994; Ibrahim and Mittmann 1994), with a smaller quantity published from Tall Handaquq

(S) (Chesson 1998). However, no EB III stratigraphic sequence from Jordan has yet been published in detail, and ceramic developments within EB III are poorly understood (but see now Harrison 2000). While it is possible to distinguish between EB II and EB III assemblages in many cases, a more refined periodization cannot be undertaken without close reference to the evidence from Palestine (Callaway 1978; de Miroschedji 1988: 70–83; Seger 1989; Esse 1991; Greenberg 1996).

It should be clear from the above that the dating of sites through ceramic criteria is far less precise than is often assumed. In fact, material can rarely be placed more precisely than within a phase of several centuries' duration. Assuming that received wisdom in ceramic chronology is broadly correct (and it may not be), it is clear that many sites were occupied during only part of the EB I–III. Furthermore, the presence at a site of material dating to any one period does not imply continuous occupation during the whole of that period, although this appears to be the assumption in much of the literature. The implication is that occupations measured in terms of a few generations, or one or two centuries, may have been common, even at fortified sites. If correct, it is hard to see individual sites as playing a critical role in structuring long-term regional social and economic relationships, implying a more fluid settlement and political universe than has generally been envisaged. Such a concept can be better related to a flexible, heterarchical world of corporate villages and middle-range societies than to the institutionalized power structures generally associated with city states.

### The material remains: architecture

Archaeological field work has been focused mainly upon walled sites; far less is known about the material culture and spatial organization of smaller settlements. The inherent bias within the available data has, therefore, conditioned the following discussion of architectural remains, the aim of which is to summarize the available information, before returning to consider its significance for our overall interpretation of the nature of the local Early Bronze Age.

#### Walls

With the exception of Jawa, the earliest fortification walls presently known in Jordan appear to date to the EB II period, although more information is available on examples dating to EB III. As in Early Bronze



Age Palestine (Kempinski 1992a: 72), fortifications grew by accretion, with walls subject to successive phases of thickening or other forms of elaboration. For example, the EB III stone wall at Bab adh-Dhra' appears to have replaced an earlier mudbrick structure (Rast 1995: 126), while the thickening of walls over time by the addition of extra layers of stone is well illustrated at Khirbat az-Zaraqun. Building materials generally reflect what was locally available, for example, sandstone at Numayra, and limestone at Khirbat az-Zaraqun.

The main wall at Bab adh-Dhra', which dates to EB III, was at least 7 m wide at the base, and bore traces of a decayed mudbrick superstructure. It was built in sections some 15–20 m long separated by transverse walls, a technique widely paralleled in Palestine (e.g. Amiran *et al.* 1978: 11–12, pl. 178), with the number of stone foundation courses varying according to local topography (Rast 1995: 126). In some instances, the stone used for the core differs between adjacent sections (Rast and Schaub 1978: 12), perhaps indicating a division of the work among different groups of workers, or the wall's construction in stages, a possible contrast to the more unified building operations hypothesized for key Palestinian sites (de Miroshedji 1989: 68). At Numayra (Coogan 1984), two parallel walls constituted the inner and outer wall-faces, while the space in between was filled with rubble. Here, too, there is evidence for transverse sections, but placed at c. 7 m intervals.

Semi-circular towers of the kind known from several EB II sites in Palestine (Kempinski 1992a: 72; Braun 1996) are as yet unknown in Jordan. A number of walled sites do, however, exhibit rectangular towers or bastions. Bab adh-Dhra' has evidence for at least two such structures. One located in the highest, northeastern part of the site revealed two phases of construction (Rast and Schaub 1978: 14) and appears to have been built in mudbrick founded upon wooden beams set between small stones (Rast and Schaub 1980: 26). An area of packed marl at the western edge of the site may indicate the presence of another tower (Rast and Schaub 1981: 14). The wall was 'strengthened' by the addition of further layers of stone adjacent to the external face of the inner wall. Regularly spaced rectangular towers formed part of the enclosure system at Tall Handaquq (N) in the Jordan Valley (Mabry *et al.* 1996: 123), while a rectangular bastion some 30 m in length protected the main entrance at Khirbat az-Zaraqun (Ibrahim and Mittmann 1994: 13). This was constructed by the addition of extra layers of

stone, resulting in a final width of more than twice that of other parts of the circuit wall. The presence of a rectangular tower at the 1 ha site of Numayra indicates that these were not just a feature of the larger settlements.

At Pella, a 20 m-long stretch of walling located at the eastern edge of the tell, just inside the Middle Bronze Age town wall, has been interpreted as part of an Early Bronze Age perimeter wall (Bourke 1997: 99). This construction, which shows two distinct phases, is dated between late EB I and the end of EB II. The presence of what appear to be two rectangular towers or revetments would appear to negate the idea of generalized shift from EB II semi-circular to EB III rectangular towers that has been claimed on the basis of the Palestinian evidence (Kempinski 1992a: 72). What may be a continuation of this wall has been uncovered in Area XXXII along the southern edge of the tell (Bourke 1997: 99–100, figs. 4–5).

The complexity of the Early Bronze Age occupation at Pella is exemplified by the presence of a large stone platform on the summit of Tall al-Husn, a natural hill located across Wadi Jirm from the main tell (Bourke *et al.* 1994: 98, figs. 8–9; 1997: 100–103, fig. 8), and that appears to represent some sort of defended complex. The extensive Early Bronze Age remains include two rubble platforms with dressed stone margins; each platform measured at least 15 by 15 m. Evidence for processing and storage functions occurs in the form of plaster-lined pits and grinding equipment. Within the destruction debris of the final use of the structure, a hoard of copper objects included axes, chisels and a spearhead. The whole complex is dated to EB I/II, and its floruit would appear broadly in line with that of the rest of the site. In concept at least, this unit is reminiscent of EB III stone platforms known at such sites as Tel Yarmouth (de Miroshedji 1988: 52–53).

We should be wary of assuming, however, that all walls were intended for defence. A case in point is Jabal Mutawwaq (Hanbury-Tenison 1989a: 137) where analysis revealed that the enclosure wall consisted of a single course only of long, undressed stone blocks, set end-to-end. Both its construction and the presence of domestic units outside the circuit (Hanbury-Tenison 1989b: 57) argue against a defensive function.

### Gates

The EB III gate at Bab adh-Dhra' was of direct-entry design, without towers or other defensive elaboration, prior to the construction of a blocking wall in its final phase (Schaub and Rast 1984: 43–46, figs. 4–5). At Jawa

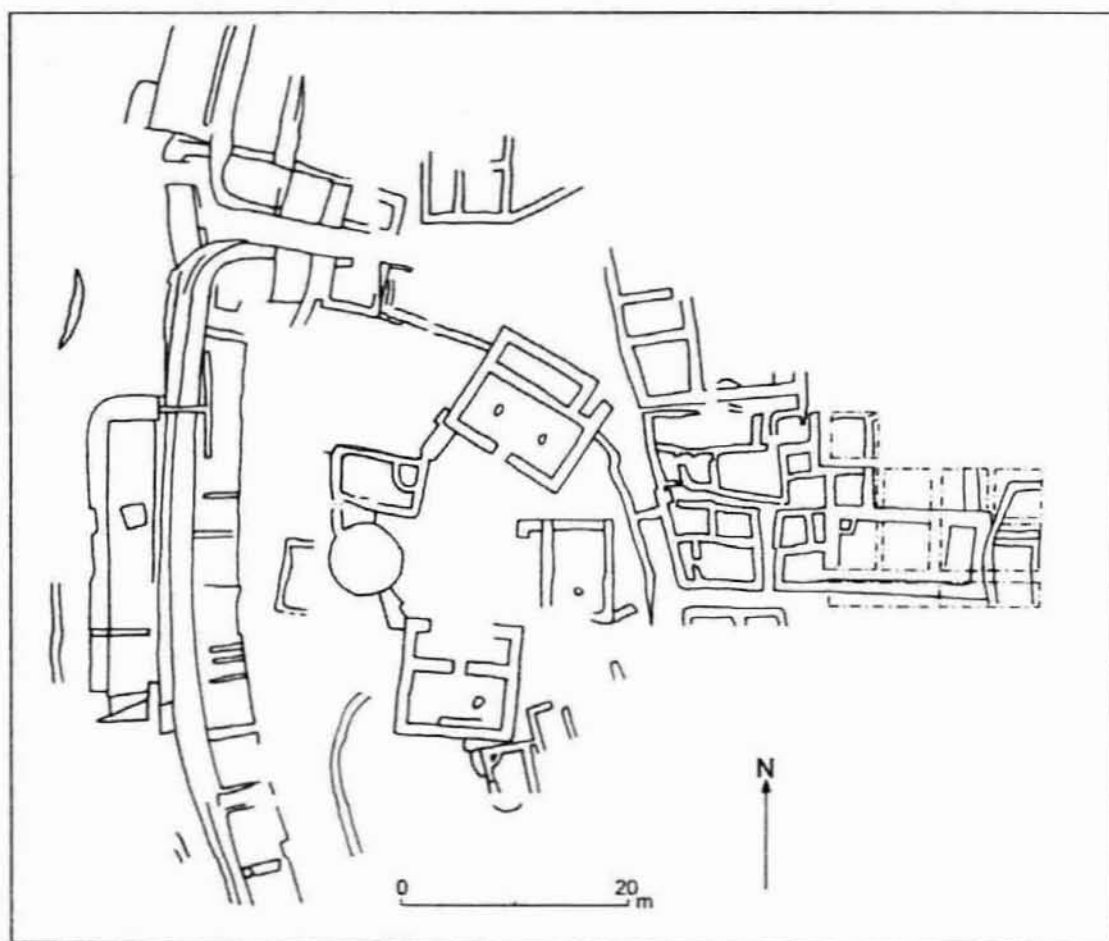


Figure 5.2. Plan of excavated area of Khirbat az-Zaraqun, showing walls, main gate, streets and cultic complex. Note the contrast between the latter and the more densely built-up area to the east (redrawn by Y. Beadnell).

in the steppe, however, the EB I Upper Fortifications included gate G 1, which featured a pair of small piers projecting slightly beyond the exterior face of the wall to create a small chamber (Helms 1981: 103-105, fig. 38; Betts 1991: 34-35, fig. 37), while a paved gateway opening between two rubble buttresses has recently been encountered within the EB II platform structure at Tall al-Husn near Pella (Bourke 1997: 102, figs. 8, 9). However, the sole instance of a large Early Bronze Age gate complex that has been investigated in detail is the main gate at Khirbat az-Zaraqun (Figure 5.2). This consists of a corridor 15 m long by 2 m broad, which passes between two towers and two rectangular rooms, before opening into a triangular open area within the upper settlement. This gate revealed three constructional phases, while another gate in the south-western wall of the site revealed two separate phases of use prior to its being built over (Mittmann 1994; Ibrahim and Mittmann 1994). Such frequent modification of defensive structures is characteristic of EB III building in Palestine (Kempinski 1992a: 73). It is not clear whether the successive stages represented

real technical improvements, necessary repairs and refurbishment, or were more connected with embellishment for the purposes of display and prestige.

In addition to the main gates, the circuit wall of Khirbat az-Zaraqun is periodically interrupted by small gaps, some 1 m in width, which are interpreted as posterns, a feature familiar from Palestinian sites (Helms 1975). While these might have a military function, Herzog (1986: 30) sees posterns as allowing easy access to the exterior, avoiding what would otherwise have been frequent, lengthy detours via the major entrances. The most obvious explanation is that posterns were included to facilitate access to cultivated areas and the movement of livestock. Thus, defensive concerns appear to have been tempered with regard to the demands of daily agricultural life.

#### Water systems

Water storage structures are a well-documented feature of Early Bronze Age walled sites in Palestine (Ben-Tor 1992: 104). The capture of seasonal precipitation



would have been even more vital in parts of the Jordanian plateau where some settlements were located close to the limits of dry farming.

A series of tunnels cut into the limestone bedrock deep below the site of Khirbat az-Zaraqun allowed access to an underground water source. While there is no conclusive evidence for an Early Bronze Age date for this system, the physical relationship of the system to the walled Early Bronze Age settlement, and the importance of water storage facilities at other Early Bronze Age sites in the region, are highly suggestive. A more elaborate water management system has been documented at Jawa, located in the arid basalt *harra* some 160 km east of the Jordan Valley (Helms 1981; Betts 1991), where there is evidence for the use of stone-built dams designed to channel water into storage pools via canals. The main catchment at Jawa is Wadi Rajil, which carries winter run-off from the Jabal al-'Arab lying to the north. Despite the lack of direct stratigraphic connections between it and the settlement, the excavator is surely correct in dating the water system to the Early Bronze Age (Betts 1991: 54). However, the exact nature and duration of the occupation remains a matter of debate (Betts 1991; Braemer 1993a; McClelland and Porter 1995).

Helms (1982: 109) draws attention to common construction techniques linking the Jawa water system to the fortification walls found at various Early Bronze Age settlements, and would view the site as an example of 'transmigrant urbanism', that is, a short-term occupation by incomers from more developed areas. Rather than interpreting Jawa as an isolated engineering marvel in the steppe, however, what is remarkable about the site is the excellent preservation of the structural remains. This is attributable to its location in the steppe where it has been relatively little affected by subsequent colluviation processes, later settlement or stone robbing. Thus, Jawa is a uniquely well-preserved instance of water management techniques that may have been quite widely practised during the later fourth millennium BC.

While parallels are rare, Mabry *et al.* (1996: 124) have argued that two stone-built dams spanning Wadi Sarar near the large Early Bronze Age site of Tall Handaquq (N) date no later than the fourth millennium BC, and are connected with efforts to retain water and silt brought down by seasonal floods. It is probably no coincidence that Early Bronze Age settlements in the Jordan Valley are concentrated along the major side wadis (Ibrahim *et al.* 1988: 171), the places most suitable for water capture techniques.

While physical evidence for water management systems in the valley remains limited, this may reflect the impact of post-Early Bronze Age geomorphological processes—the downcutting of wadi beds (Donahue 1985; Mabry 1989: 59) and the build-up of colluvium along the valley floor (Banning 1996)—in addition to later building and agricultural activities. Other topographical features that may indicate water storage activities include a large depression within the site of Tall Handaquq (N), and a substantial basin detected at Tall Jalul near Madaba (Mabry *et al.* 1996: 124, fig. 2; Harrison 1997). There appears to be a limited but suggestive body of evidence for both on-site water storage and for major structures designed to exploit seasonal water surpluses.

### *Internal organization of walled settlements*

A number of Palestinian Early Bronze Age sites appear to show a division into an acropolis area, containing key public buildings, and a lower town, comprising domestic structures (Kempinski 1992a: 79). The implied difference has been seen as indicative of social differentiation. A similar arrangement of upper and lower town appears to have characterized a number of walled sites in Jordan, such as Tall al-Hammam and Tall Handaquq (S) in the Jordan Valley, and al-Lajjun on the al-Karak plateau (Prag 1991: 60; Chesson 1998; Miller 1991: 102). However, this was not universal since at Numayra the entire central area was occupied by domestic structures (Coogan 1984). Clearly, all walled settlements were not functionally equivalent.

Khirbat az-Zaraqun is the only site where a sufficiently large contiguous area (5000 m<sup>2</sup>, see Figure 5.2) has been excavated to permit discussion of internal organization (Mittmann 1994). The site shows good evidence for systematic planning and appears to have been divided into an upper town, located east of the main gate, containing cult structures and other public buildings, and a lower town to the south. The latter revealed a regular network of streets, with dwelling units separated by narrow passageways. Of particular interest is the location within the lower town of what would appear to be a substantial non-domestic building, which may have been connected with the gate to the lower town, and appears to have gone out of use when the latter was blocked.

There is little to suggest that Early Bronze Age walled settlements in Jordan were intended to function as centres of specialist manufacturing activity. No

walled site has yet produced a clearly defined industrial installation, or even a marked concentration of manufacturing debris, suggesting that much craft activity was undertaken outside the walled areas. However, soundings at Bab adh-Dhra' have revealed good evidence for extramural occupation, including material both predating and contemporary with the walled settlement (Rast and Schaub 1980: 23), raising the possibility that excavators' concentration upon intramural occupation may have skewed the data.

## Public buildings

### *Cult structures from settlements*

While Chalcolithic cult structures appear both within settlements and as isolated units (Levy 1995a: 235–36), their concentration within settlements in EB I and within the central areas of walled sites (that is, differentiated from domestic occupation) by EB II–III has been taken as indicative of increasing centralized control over religious activity (de Miroschedji 1989: 69).

Khirbat az-Zaraqun has revealed an excellent example of such a cult area (Figure 5.2), located just south-east of the main entrance (Mittmann 1994; Ibrahim and Mittmann 1994). This consisted of an enclosure composed of four 'broadroom' structures, both elements (enclosure and broadroom layout) characteristic of Early Bronze Age cultic buildings in Palestine (Ben-Tor 1992: 101; Kempinski 1992b: 57–58, fig. 1). These buildings were of different sizes, and formed a rough circle around a courtyard. The southern structure had a shallow anteroom placed before the 'cella' and is interpreted as a temple by excavators. On the floor were two flat stone slabs, which would have functioned as the bases for timber roof supports, partly embedded in the limestone-marl floor. Benches of plastered stone lined the walls. Three other 'broadroom' structures surrounded the courtyard; that in the northeast corner revealed indications of a possible staircase giving access to the roof or an upper storey in an annex against the rear wall. At the eastern side of this area, a circular stone-built platform was located. Some 6.5 m in diameter and bearing traces of lime plaster rendering, the platform was preserved to between 0.5 m and 1.0 m in height, with access gained via several steps on its eastern side. The cultic nature of this area is confirmed by the existence of a very similar structure (altar 4017) in the EB III cultic area at Megiddo in northern Palestine (Ben-Tor 1992: 103: figs. 14.16, 14.17). The presence of two such similar structures might suggest

not only shared architectural styles, but even a degree of common cult practices between the two sites.

However, what have been interpreted as 'cult' structures are not restricted to upper towns. Building 1.3 located in the lower town at Khirbat az-Zaraqun, in architectural terms a domestic structure, has also been viewed as 'cultic' because it produced a number of figurines. The excavators have suggested that this structure represented the focus of some sort of domestic cult, in contrast to the 'official' practices represented by the main 'cultic' area in the upper city.

A rectangular structure some 12 by 6 m in size and located within Field XII at Bab adh-Dhra' has also been interpreted as 'cultic' (Rast and Schaub 1981: 27–31). This revealed two building phases similar in size and alignment, but separated by a layer of gravel. An area of flagstones is located at the north end of the interior, and the lower phase has preserved three large stone slabs each preserving *in situ* the stump of a wooden beam. The later reconstruction included a mudbrick stairway and the brick pavement of an open courtyard to the west. This paving abutted a semi-circular stone structure (Locus 13), which has been interpreted as an 'altar'. An unusual assemblage—five flint tabular scrapers and a seal impression—was recovered from its vicinity. Preserved traces of internal decoration include possible fragments of ivory and a large wooden beam that had been inlaid with squares of plaster (Rast and Schaub 1981: fig. 25). If these structures are allowed at least some kind of cult function, it appears that even within walled settlements certain aspects of cultic practice lay outside the direct physical control of elites.

### *Standing stones*

Groups of free-standing stone monoliths, often viewed as of cultic significance, are known from the Chalcolithic site of Gilat (Alon and Levy 1989: 182–84) and in arid areas of southern Palestine (Avner 1984, 1990). However, several examples from south-central Jordan are located within, or close to, Early Bronze Age walled settlements.

A short way from the walled Early Bronze Age site of al-Lajjun, located east of al-Karak, Glueck (1934: 45, fig. 19) reported a group of 16 uncut limestone blocks each around 1.5 m high and erected on end to form a gentle curve. At Adir, some 10 km to the southwest, Glueck (1934: 45–47, figs. 19–21) recorded three much larger monoliths. One, 4.5 m high, remained erect, while two others, each 3.8 m in length, were lying on the



ground. Albright (1924: 10) recorded the presence of monoliths at Bab adh-Dhra', although these have since been destroyed, while others exist at Khirbat Iskandar (Richard and Borass 1984: fig. 5). Several groups of standing stones from southern Jordan appear to reveal a spatial association with Early Bronze Age settlements. A monolithic pillar standing upon an artificial stone terrace in Ghor adh-Dhra' east of the Dead Sea has been dated to the Early Bronze Age (Korber 1993), although the associated material remains unpublished. However, it is not clear whether the apparent concentration of monolithic sites in south-central Jordan reflects their original distribution, or a lower rate of destruction there compared with areas that have seen more intensive subsequent land use.

Standing stones in Jordan have traditionally been dated to EB IV, a view apparently based upon Glueck's early surveys in 'Moab' (see Mattingly 1983: 482-83), and it has often been assumed that these 'open-air' monuments were associated with nomadic groups (see Graesser 1972 for general discussion). However, the location of examples close to, or within, walled EBA II-III sites would suggest an earlier date, while the alleged association of stone monoliths with mobile groups would appear qualified by their presence in cult structures located in the heart of major second-millennium BC towns (Otto 1980; Kempinski 1992b: 174-75). Moreover, the incorporation of a pre-existing row of free-standing worked stone slabs within the wall of a substantial EB I building at Hartuv in Palestine (Mazar and de Miroschedji 1996: 6-10, figs. 5, 6) underscores the connection between superficially very different architectural forms, namely roofed rectangular structures, and open-air monoliths. Given the ability of humans to transform and reinterpret structures, attempts to associate either type of monument with a particular social group would appear overly simplistic.

### *Discussion of cult structures*

Individual units appear relatively small, and there is no indication of storage or administrative facilities directly associated with cultic installations. Many structures take the form of broadrooms, with roofs supported on wooden pillars resting upon stone bases. The discovery of a large cult installation at EB III Khirbat az-Zaraqun appears to support Joffe's (1993: 83) argument that there was, at least by EB III, a tendency to locate certain aspects of cult activity within central areas of larger sites, as at Khirbat az-Zaraqun and Megiddo. This could

be interpreted as indicative of growing control over these agricultural communities by emergent elites, who sought to utilize cult connections as part of a strategy of legitimation.

However, this may only be one part of the story, and alternative interpretations are possible. The variety of potential Early Bronze Age 'cultic' structures, ranging from single rooms to large complexes, as well as a range of open-air sites of a very different physical nature, suggests the simultaneous existence of multiple spheres of cult activity, not all of which would have been equally well integrated with systems of political control. Moreover, while one building from Khirbat az-Zaraqun has offered some evidence for cult furnishings, it remains the case that the majority of so-called cult structures have produced far less in the way of distinctive paraphernalia than have their second-millennium BC equivalents. The absence from Early Bronze Age cult areas of the offering pits, and large quantities of portable artifacts so characteristic of second-millennium BC cult sites (Philip 1988; Ilan 1992), is interesting, and suggests that the practices conducted within and around cultic buildings differed between the two periods. Given the close relationship between Middle Bronze Age grave goods and contemporary cultic offerings (Philip 1988: 193), the rarity of small non-ceramic objects in both Early Bronze Age graves and cult sites may not be fortuitous (see further discussion under burial evidence, [p. 199-200]).

### *Administrative structures*

In comparison to their defences, the preserved public architecture from Early Bronze Age sites in the southern Levant is relatively unimpressive (Kempinski 1992a: 78; Joffe 1993: 84). Despite the evidence of a large late EB III architectural complex with significant storage facilities at Tel Yarmouth (de Miroschedji 1999: 10-12), there is nothing from either Palestine or Jordan that resembles the administrative complexes seen in a contemporary Syrian centre, such as Tall Mardikh. This has revealed evidence for reception suites, bureaucratic archives, specialized craft workshops, and stockpiles of valuable imports (Archi 1991; Mazzoni 1991; Pinnock 1991). The absence of these features from sites in the southern Levant, despite the evidence for 'public works' in the form of defensive and water management systems, suggests a sociopolitical organization in the south that was qualitatively different from that of Syria.

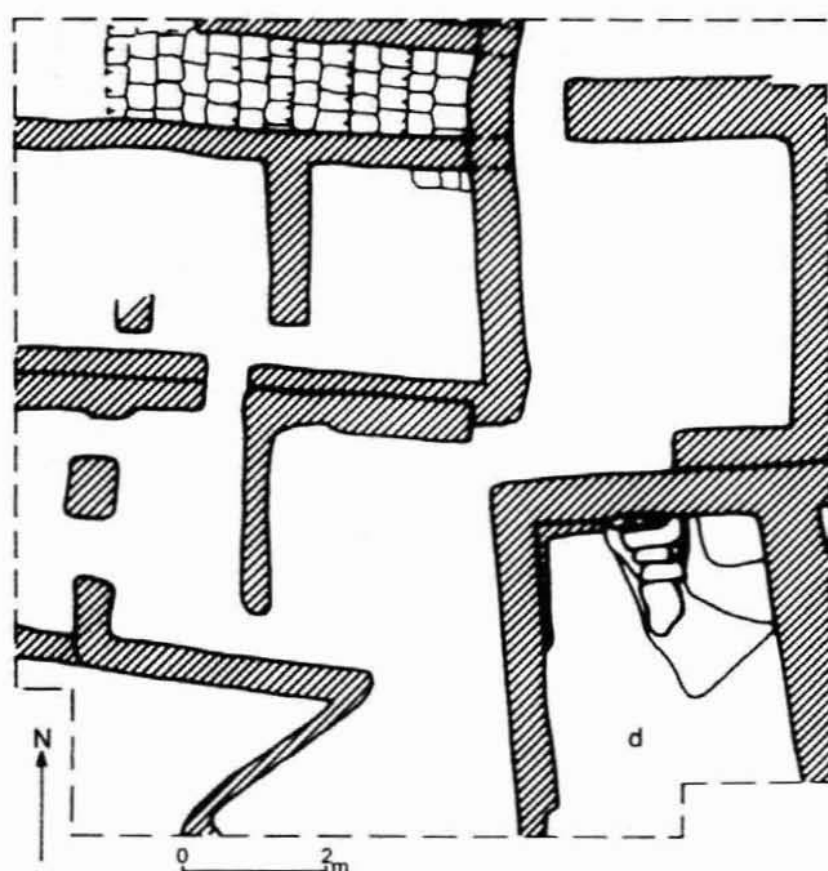


Figure 5.3. Tall as-Sa'idiyya Area BB 700, Stratum L2 (EB II). An example of agglomerative rectilinear architecture; the sunken room 'd' was apparently used for storing oil (redrawn by Y. Beadnell).

In the southern Levant, large, non-domestic structures regularly take the form of rectangular halls with a central row of pillars, a design that persists right through EB I–III (Marquet-Krause 1949: fig. C; de Miroschedji 1988: 38, fig. 2; Mazar and de Miroschedji 1996; Mazar 1997: 148). Only one excavated Early Bronze Age structure from Jordan falls into this category, a building complex located to the east of the cultic area at Khirbat az-Zaraqun (Figure 5.2). This consists of a large 'broadroom' with thick walls, perhaps indicative of the presence of an upper storey. Adjoining it is a complex of small rooms, which produced many small finds and medium-sized storage vessels. While provisionally termed a 'palace' (Mittmann 1994), the finds suggest that the structure functioned more in connection with work and storage than with official reception and government. Another large building was located in the lower town, connected with the gate. Measuring 11.5 m long by 5.0 m broad, and with a row of four stone pillar bases on the floor, this building appears not unlike the so-called 'Palace' at Ai, now generally interpreted as a temple of some kind (Callaway 1993: 41).

Pillared halls have been variously interpreted as temples, palaces and storage complexes, and it may be that this was no more than an architectural form employed

for structures fulfilling a range of functions. Perhaps the notion of a clear distinction between buildings having cultic, administrative or elite residential functions is inappropriate in an Early Bronze Age context. These structures might be better termed 'non-domestic' or 'special purpose' complexes (Mazar and de Miroschedji 1996: 13). As such, they may have taken the form of individual buildings able to serve a variety of the community's needs, an interpretation that appears in accord with the cross-cutting power structures envisaged under a heterarchical model.

A connection between large structures and storage is seen in a late EB I pillared hall recently excavated at Beth Shan (Mazar 1997), which contained large amounts of carbonized grain and lentils and many broken jars. The pattern is reinforced by recent evidence from Tall as-Sa'idiyya. Here, a substantial EB II multi-roomed installation included a sunken room measuring some 4 by 3 m and entered via steps (Figure 5.3), which contained the remains of 12–13 large storage jars, suggesting the need to keep a commodity cool, most likely olive oil (Tubb and Dorrell 1993, 1994). The presence of almost 200 pierced bivalve shells within one room has led the excavator to suggest their employment within some





Figure 5.4. Tall ash-Shuna, circular EB I structure, Building 9; note stone base for central roof support (G. Philip).

sort of recording system connected to storage activities (Tubb and Dorrell 1994: 63). While evidence for specialized craft production is scant, the data does argue that certain non-domestic structures within Early Bronze Age walled settlements played an important role vis-à-vis the storage of agricultural products, such as grain, lentils and liquids. In this light, the fortifications would have offered the critical elements of both external security and internal control, points perhaps significant on both physical and ideological levels.

To summarize, evidence for large complexes of public architecture appears only during EB III, be these 'cultic' or administrative. If these are indicative of growing inequality, and or even of an emergent elite (Joffe 1993: 85-87), then the creation of defensive walls appears substantially to predate this development. The evidence of non-palatial public architecture, central storage facilities for agricultural products and of defensive walls, all of which predate the emergence of local elites, appears in harmony with the models of staple finance and the corporate village community.

### *Domestic structures*

#### *EB I*

In contrast to the wide distribution of 'rectangular halls', Early Bronze Age domestic structures assumed a variety of forms. A tradition of free-standing curvilinear

structures is documented in the early EB I of northern Palestine (Ben-Tor 1992: 62-64). A distinctive feature of those from Yiftahel in Galilee was the presence of an internal area of stone paving (Braun 1989b: 4, fig. 4). An arrangement of slabs observed in the partly exposed early EB I Building 5 at Tall ash-Shuna (Baird and Philip 1994: 116, fig. 5) may indicate the presence of similar units at sites in northern Jordan.

While small rural sites such as Yiftahel may well have been composed largely of low-density, free-standing, curvilinear structures (Braun 1989a: fig. 4), larger settlements have revealed greater architectural diversity. In addition to Building 5 described above, the early EB I phase at Tall ash-Shuna has revealed a circular structure some 5.5 m in diameter, built of mudbrick on stone foundations (Figure 5.4), with a stone slab in the centre forming the base for a timber roof support. Building 9 appears to have been one of several circular structures, grouped closely in the central area of the site, revealing a greater density of structures than that seen in many 'rural' sites. There is an interesting correspondence between the form of this structure and circular built tombs at Bab adh-Dhra' ascribed to EB IB (e.g. Schaub 1982: 73).

Also dating to the early EB I period at Tall ash-Shuna was Building 13, a rectilinear multi-roomed structure, more akin to the later EB I buildings from the site (Figure 5.5) and EB I structures from nearby sites like Tall Kitan in Palestine



Figure 5.5. Tall ash-Shuna, later EB I rectilinear structure, Building 3; note stone bases for uprights supporting roofed areas (G. Philip).

(Eisenberg 1993: 879–80). Among the noteworthy features of Building 13 are plastered hearths positioned in the corners of rooms and the presence in the floor of irregular stone pillar bases, indicative of substantial roofed areas—illustrating a connection between local domestic and public architectural forms. The evidence from Tall ash-Shuna, therefore, argues against a ‘normative’ view of EB I domestic structures as dominated by a single architectural style. Furthermore, the variety noted at Tall ash-Shuna is in sharp contrast to the apparently homogenous architecture seen at smaller sites, such as Yiftahel and ‘Ayn Shadud, suggesting that there was a real difference in both architectural diversity and the density of occupation between the larger, long-lived EB I sites, such as Tall ash-Shuna and the shorter occupations evidenced at small rural sites. This fact emphasizes the pivotal role played by the larger northern EB I settlements in the restructuring of post-Chalcolithic society (Joffe 1993: 46). The location of Tall ash-Shuna and other large early EB I sites, such as Tall Umm Hammad (Betts 1992), on major wadi systems offering considerable irrigation potential is also likely to form part of this picture.

Occupation at a far lower density is seen at the fourth-millennium BC site of Jabal Mutawwaq east of Jarash, where surface remains suggest the presence of several hundred ovoid structures dispersed over some 28 ha. Some lie within and others outside the so-called enclosure wall. Individual units are 6–10 m in length

with foundations of long stone slabs and a doorway in one of the long sides flanked by upright pillars, a feature also seen in the entrance to one of the rectangular halls at Hartuv in Palestine (Mazar and de Miroschedji 1996: 9, fig. 5). The contrast between such low-density arrangements of relatively homogenous units and the more heterogeneous makeup of higher density occupations may well indicate the greater functional diversity and socioeconomic complexity of the latter, which would appear to anticipate the role of the later EB II–III walled settlements.

The walled site of Jawa in the steppe presents yet another contrast. Here, small subcircular structures with walls coated in yellow clay plaster have been interpreted as dwellings. A structure in square UT1 consisted of a subcircular main room, with two smaller compartments (Figure 5.6). Flat stones in the centre of floor may have provided a base for roof supports (Betts 1991: 35–36, figs. 39, 40). However, there is little in the evidence from Jawa to suggest that this architecture represented an indigenous steppe tradition, and it is better seen as an adaptation of familiar western techniques to suit locally available building materials and environmental conditions. The walled EB II settlement of Arad in the arid northern Negev has recently been reinterpreted as a community of sedentarized pastoralists, facilitating interaction between the populations of the south Palestinian steppe and the Mediterranean zone (Finkelstein 1990; 1995b: 80–82).

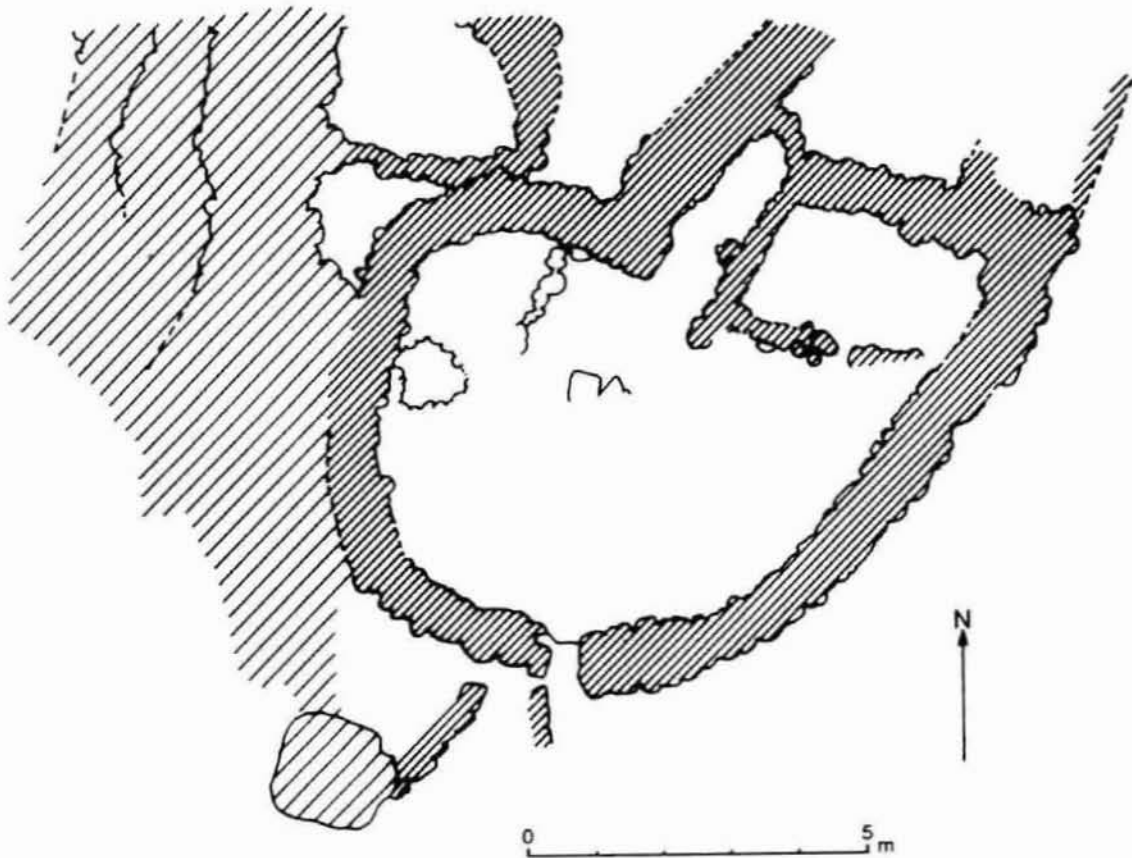


Figure 5.6. Jawa, subcircular domestic structure in Square UT1; structure abuts main site wall to the west (drawn by Y. Beadnell).

The architecture of this site, with its compounds, rectilinear structures and evidence of planning (Ben-Tor 1992: 62-63), is substantially different from that so far revealed at Jawa, suggesting that there may be significant differences between the ways in which southern and eastern areas of the steppe were incorporated into the wider regional system.

#### EB II-III

The domestic architecture of EB II-III is characterized by rectilinear, multi-roomed structures generally built of mudbrick on stone foundations, sometimes with internal benches. The influence of locally available materials on building practices is neatly illustrated by the fact that buildings at Numayra are made in local sandstone, while those at nearby Bab adh-Dhra' are built almost entirely of mudbrick, reflecting its position on marl deposits (Rast 1995: 127). This procedure extended to the site's local funerary architecture as well, with stone foundations restricted to major architectural units.

Typical domestic installations include a variety of ovens and hearths and large jars sunk into floors (Herr *et al.* 1991: 11). At Tall Abu al-Kharaz (Fischer

1993, 1994), structures are terraced to deal with the sloping topography, and are separated by narrow pebbled streets. Overall, the evidence appears to suggest that multi-roomed, rectilinear structures, separated by narrow alleyways were the norm for EB II-III sites (Figure 5.7), although the picture would be more satisfactory were more undefended 'rural' sites to be excavated to complement the evidence from the fortified settlements. While general accounts focus attention upon the predominance of 'broadroom' architecture during EB II-III (Ben-Tor 1992: 62-64), many domestic structures do not appear to conform to this category. The main common feature of domestic architecture throughout the Mediterranean zone appears to be the rectilinear plan, within which there exists a considerable degree of variety.

Tall al-'Umayri has revealed multi-roomed EB III domestic complexes that might be described as consisting of groups of 'long' rooms. Artefacts reflect subsistence-related activities—grinding stones, storage jars and debris from chipped-stone working, while a range of spindle whorls indicate textile production (Herr *et al.* 1991: 10-11) within domestic structures. Multi-roomed rectilinear complexes also characterized the central area at Numayra where several such units



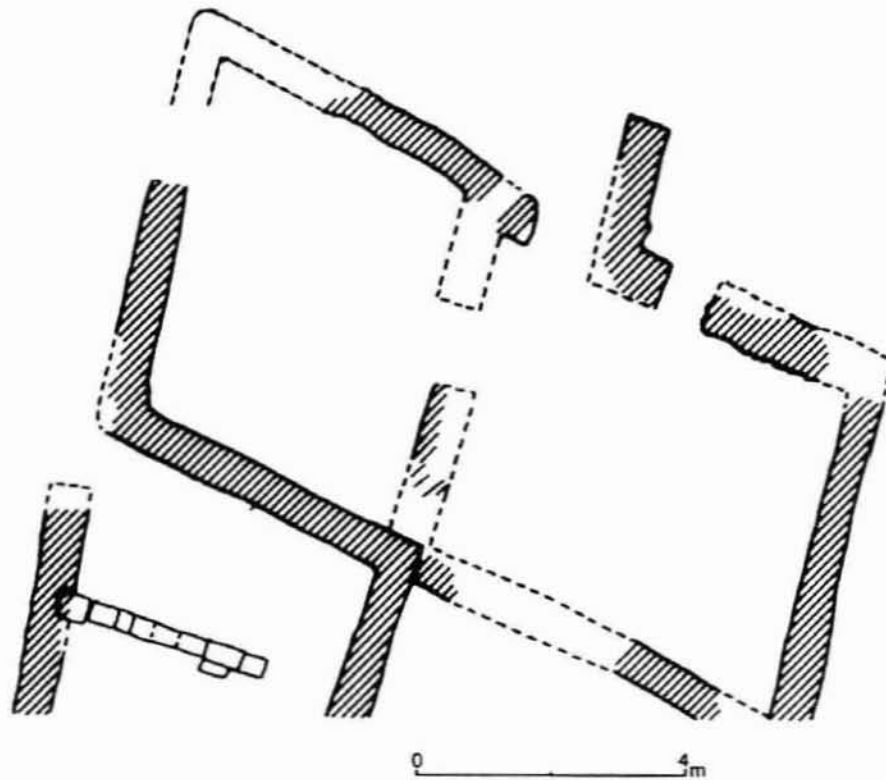


Figure 5.7. Tall Abu al-Kharaz Area 2, EB II Main Phase II; two-roomed, rectilinear architecture (drawn by Y. Beadnell).

were separated by open areas. This site also revealed evidence for roofing techniques using wooden beams covered in reeds and grasses tied together with ropes to produce a kind of thatch (Coogan 1984). Installations such as hearths, stone mortars and storage jars were set into the ground, while the large assemblage of storage vessels, and a number of pits and unfired clay silos, indicate that a significant amount of agricultural produce was stored within individual dwelling complexes. Viewed as a whole, the evidence suggests that many aspects of production and storage were undertaken at the level of individual households.

Numayra, at 1 ha, is small for a walled site, and, despite the emphasis on storage seen within domestic units, has not produced any structure equivalent to the pillared halls seen at some other sites. There is clearly no direct functional equivalence between a small, walled, arid-zone site, such as Numayra, and much larger walled settlements, such as Khirbat az-Zaraqun, located in areas with far greater agricultural potential.

### Early Bronze Age walled settlements: organization, significance and diversity

While some walled sites were clearly more than simple agglomerations of domestic units, there is no evidence

for the palace complexes or specialist workshops seen in Syria. Rather, the major architectural units appear to have been multi-purpose pillared halls, a form derived from domestic architectural traditions, and which may have been connected with the storage of agricultural products. The architectural evidence suggests a society that, while sufficiently corporate to make substantial investments in common facilities, remained heterogeneous and fragmented in many aspects of subsistence, residence and cultic activity.

The traditional focus upon the presence of defensive walls as a criterion for indicating 'significance' has distracted attention from the fact that even the largest Early Bronze Age walled sites in Jordan encompass no more than 10–20 ha, which is small by the standards of 'urbanism' present in Syria and Mesopotamia (Falconer 1987; Joffe 1993). A consideration of the population levels of Jordanian walled settlements should provide some indication of their likely sociopolitical organization. Falconer (1994: 312) argues that a settlement should only be defined as 'urban' when its population lies beyond that which can be supported from its immediate agricultural sustaining area. A common method of reckoning the populations of ancient sites is the use of estimates based upon site areas. However, calculation is complicated by the contrasting figures



Sustaining area (radius in km)	Sustaining area (ha)	Sustainable population	Threshold 100 persons/ha	Threshold 250 persons/ha
3	2850	1900	19.0	7.6
4	5000	3350	33.5	13.4

Table 5.2. Threshold area for defining an urban site, using sustaining areas of both 3 and 4 km radius and population estimates of 100 and 250 persons/ha.

Site name	Site area (ha)	Periods of occupation
Jawa	c. 5 (upper town)	EB I (Betts 1991: fig. 5)
Khirbat az-Zaraqun	8	EB III (Mittmann 1994)
Pella/Husn	8	EB I-II (Bourke 1997)
Tall Abu al-Kharaz	4	EB I-II (Fischer 1994)
Tall al Handaquq (N)	7 (fortified), 25-30 (scatter)	EB I-II (Mabry 1996)
Tall as-Sa'idiyya	8	EB I-II (Tubb and Dorrell 1994)
Tall al-Handaquq (S)	15	EB IB-III (Chesson 1998: 20)
Tall al-Hammam	15	EB III (Prag 1991: 65)
Tall al-'Umayri	4.25	EB III (Harrison 1997)
Bab adh-Dhra'	4 +	EB I-III (Rast and Schaub 1981)
Numayra	1	EB III (Coogan 1984)

Table 5.3. Excavated walled Early Bronze Age sites in Jordan (site areas and periods of occupation) listed from north to south.

employed by scholars to estimate population per unit area, which range between 100 and 250 persons per ha (Esse 1991: 162; Harrison 1997). Using Falconer's figure of 1.5 ha of land per person, and an agricultural sustaining area of 3-4 km radius from the site, both derived from ethnographic sources (see Falconer 1994: 312 for details), it is possible to estimate where the urban/rural boundary would lie under population densities of 100 and 250 persons per ha (Table 5.2).

Given the difficulty of relating site area to population (Esse 1991; Harrison 1997) and the very different agricultural potentials of the hinterlands of individual sites, these figures are of heuristic value only. However, it is immediately apparent that only by using the maximum estimate for population density and the minimum agricultural sustaining area (3 km radius) does the limit for 'urban' fall below 8 ha. In reality, the limit probably lies some way above this, with the result that few if any of the Early Bronze Age walled sites in Jordan would be classed as 'urban' on this basis (for site areas see Table 5.3). In fact, they should be seen as non-urban agricultural communities, a situation aptly summed up in Falconer's (1987) phrase 'Heartland of Villages', a conclusion in accord with the architectural evidence treated above.

Using the figures quoted above, population estimates for a 10 ha settlement would lie in the range of 1000-2500 persons. A number of cross-cultural studies

suggest that communities with populations exceeding 2500 seem to be associated with a significant degree of organizational complexity (Feinman 1995: 260). At the other end of the spectrum, figures quoted by Upham (1990: 12) suggest 400 individuals as providing the upper limit for the population of most non-hierarchical sedentary societies. Under most of the estimates cited above, the population of nearly all Jordanian Early Bronze Age walled sites would fall between these thresholds, and would be classed as 'middle range' societies according to the criteria of Feinman and Neitzel (1984). Of critical importance for our understanding of the Early Bronze Age data is the point that, with groups of this size, there is no automatic connection between *political* leadership and control over *strategic economic* resources, a position in keeping with the ideas of kinship-based groups and heterarchy.

### EB II-III

These two are frequently treated together in settlement studies (Gophna and Portugali 1988; Finkelstein and Gophna 1993), and perceived as the floruit of the Early Bronze Age city-state system (Esse 1989: table 1). However, the tendency to treat EB II and III as a unit may have concealed very real changes taking place within this lengthy period, a point that has already been made by Joffe (1993). In practice,

sites showing settlement continuity through EB II–III are the exception. Many sites show only partial Early Bronze Age sequences, often relatively short periods of florescence punctuated by significant phases of decline or abandonment (see Table 5.3). Some of the largest EB I settlements, such as Tall ash-Shuna and Tall Umm Hammad, did not develop into major EB II centres, while many walled EB II sites—Pella, Tall Abu al-Kharaz, Tall as-Sa'idiyya, for example—show little sign of significant EB III occupation. On the other hand, some sites with substantial EB III remains, for example Bab adh-Dhra' and Khirbat az-Zaraqun, reveal little evidence for an EB II occupation of comparable scale (see Table 5.3). Major Palestinian settlements, such as Megiddo and Beth Shan (Esse 1991: 83; Finkelstein 1995: 50; Mazar 1997) appear to lack significant EB II occupations, despite the presence of substantial EB I and EB III remains, while other important sites, such as Arad and Tall al-Far'a (N) (Amiran and Ilan 1996: 1; de Miroschedji 1993a: 437), were abandoned before the end of EB II.

There has been a tendency in the literature to assume that the presence of EB II or EB III occupation means that the site was occupied throughout the entire EB II or EB III periods. Implicit in this view is the notion that walled sites were fundamental structural components of the political and economic organization of their local regions. However, to my knowledge, no walled site in Jordan has yet produced the large number of successive stratigraphic phases of domestic occupation that would be expected to result from the continuous intensive use of mudbrick architecture over several centuries. Long continuous occupations require to be demonstrated on stratigraphic grounds, rather than simply assumed on the basis of our still inadequate knowledge of local ceramic sequences.

The large number of sites that do not show smooth transitions between periods should cast doubt on assumptions of continuity of occupation within periods. This provides further evidence for viewing individual walled settlements as something less than permanent structural features of the Early Bronze Age landscape. It would perhaps be better to view their expansion, continuance and contraction as contingent upon particular, and perhaps short-lived, combinations of circumstances within individual localities.

Unstable hierarchies and highly fluid systems of political control are common features of middle-range societies (Paynter 1989: 381–83; Earle 1991: 4). Thus, regional polities, where they existed, may have been

short-lived political phenomena, deriving material support from the local subsistence base, but not constituting deeply rooted features of local socioeconomic organization, and certainly not indicative of institutionalized, elite-dominated resource extraction. A constantly mutating system of this kind might explain some of the apparent oddities of site location noted by Finkelstein (1995a) in his discussion of theoretical site territories in EB II–III Palestine. It might also account for the significant number of large EBA II–III sites that did not reappear as important settlements in the Middle and Late Bronze Ages.

## Settlement and subsistence

### *Subsistence economy*

The fourth millennium BC saw a number of changes to the subsistence economy of the southern Levant. These innovations, when combined with the intensification of practices already documented in the Chalcolithic, appear to have permitted a significant increase in agricultural production. The major areas of change were:

- a. Irrigation agriculture, which, although practised during the Chalcolithic, appears to have been more widely adopted during the Early Bronze Age (Rosen 1995: 33–35).
- b. Extensive cultivation, using the ox-drawn plough (Kolska-Horwitz and Tchernov 1989; Grigson 1995).
- c. A substantially increased emphasis on tree crops, the olive and vine in particular (Stager 1985; Lipschitz *et al.* 1991; Esse 1991: 119–25; Finkelstein and Gophna 1993).
- d. The large-scale employment of the donkey as a pack animal (Ovadia 1992; Grigson 1995).
- e. The greater availability of metal tools for agricultural maintenance and general construction purposes. Evidence in this case comes as much from a decline in the frequency of heavy chipped-stone tools such as axes, adzes and chisels at the beginning of the Early Bronze Age, as from the corpus of surviving metalwork (Rosen 1997a: 161–62).

The effective exploitation of most of the above innovations would have required a degree of long-term investment. The will to commit resources in this manner has recently been linked to the stimulus provided by Egyptian demand for the products of the Levant

(Esse 1989; Joffe 1993; Gophna and Finkelstein 1993; Levy 1995a). The argument is that the appropriation of produce and, thus, control over investment decisions was increasingly concentrated in the hands of emergent local political elites, who functioned as coordinating mechanisms for production, and as channels through which products were collected and transported to the Egyptian market. According to this view, changes in subsistence practices were linked to local political change.

Increasing agricultural production to a level some way beyond that required for immediate subsistence needs would have provided an opportunity for surpluses to be deployed in a variety of projects. However, the manner in which such surpluses were deployed would have been a factor of sociopolitical organization, the social relations of production in Marxian terms. The unique archaeological record of the Early Bronze Age constitutes the material results of these choices. Once more, the lack of evidence for conspicuous consumption and the emergence of elites contrasts with the substantial evidence for investment in a variety of community-centred projects—defences, irrigation works, storage facilities, etc. The manner in which surpluses were deployed is consistent with the anticipated outcome of decision-making on a corporate basis (Schwartz and Falconer 1994; Blanton *et al.* 1996), in which investment in community-level projects was favoured over individual consumption.

The above is, of course, simply a generalized scheme. In fact, the environmental diversity of Jordan was such that irrigation, tree crops and extensive plough agriculture were not equally suited to all areas. Regional differentials are also seen in Early Bronze Age Palestine where there existed a contrast between the coastal plain, suited for cereal growing, and the upland areas of the West Bank, seen as more suited to tree crops and seasonal grazing (Rosen 1995: 38; Falconer and Savage 1995: 51). It can be argued, therefore, that the supraregional changes in settlement and economy that are documented (see below) could only have resulted from the effective integration of the productive capacities of different regions.

### Irrigation

In a region in which rainfall was highly seasonal, and in which livestock raising was likely to be an important component of subsistence strategies, structural evidence for the collection of water cannot automatically be taken as indicative of irrigation agriculture.

The structural indications from Tall Handaquq (N) at present constitute the only physical evidence for the existence of major water catchment systems outside the basalt *harra*. Support is provided by the recovery of grains of naked bread wheat of a sufficiently large size to suggest irrigation agriculture (Mabry *et al.* 1996: 142). In addition, the botanical record from Bab adh-Dhra', located on Wadi al-Karak in the arid southern Ghor, indicates the cultivation of cereals and pulses, suggesting some sort of irrigation. Additional evidence in the form of linseeds, of a size too great to have been cultivated without irrigation (McCreery 1981: 167), provides further support for this view. Although no structural remains of Early Bronze Age water systems were found, the existence of a system perhaps involving the channelling of spring flows or captured run-off water would have considerably increased the agricultural potential of the area, and would go a long way towards explaining the growth of a walled settlement in that particular location.

Simple floodwater irrigation systems are documented from earlier Chalcolithic settlements located along watercourses such as Wadi Bi'r as-Saba' (Levy 1995b: 230; A. Rosen 1989, 1991, 1995), indicating that the necessary technology was already available at the beginning of the Early Bronze Age. In geographical terms, the east side of the Jordan Valley, with its large number of tributary wadi systems would appear especially suitable for simple irrigation systems. The site of Jawa in the steppe has revealed both structural and botanical evidence (e.g. the presence of six-row barley that could not have been grown locally without irrigation) for the practice of small-scale irrigation (Helms 1982: 105; Wilcox 1981). Regardless of whether the water captured at Jawa was used for cultivation or livestock raising alone, the presence of dams and pools at a fourth-millennium BC site far out in the steppe is strong evidence for the employment of similar techniques elsewhere in Jordan.

Another argument in favour of irrigation agriculture in the Jordan Valley is the sheer number and size of Early Bronze Age settlements and their concentration along the major tributary wadis. Many of these sites are located in areas where annual precipitation is below 300 mm, which, when interannual variability is taken into account (Esse 1991: 11), would render reliable cultivation of most cereals and pulses problematic (Lipschitz 1989: 274). Within these regions, it is hard to see how the population concentrations implied by sites covering 10 ha or more could have been sustained without the increased agricultural production



that irrigation would have provided (A. Rosen 1995: 33). In fact, the investment and long-term commitment to a location implied by irrigation may have played a part in the development of walled communities in these key locations.

A dependence upon irrigation agriculture might also provide a clue to the lack of significant post-EB III occupation at many of the larger Early Bronze Age sites in the Jordan Valley. Although too little geomorphological work has yet been undertaken to establish a general pattern, significant episodes of post-Early Bronze Age erosion, observed at Bab adh-Dhra' and Numayra in the southern Ghor (Donahue 1985: 136–37; 1984: 86–87) and at Tall Handaquq (N) farther north (Mabry 1989: 59), may have reduced irrigation potential through the downcutting of the nearby water courses. A. Rosen (1995: 36) has observed that erosional processes towards the end of the Early Bronze Age appear to have rendered floodwater irrigation difficult at certain Palestinian Early Bronze Age sites, perhaps significantly reducing the carrying capacity of the local agricultural base in these locations. Were it established that the two sets of processes were related, this would constitute important evidence for our understanding of both the origins, and eventual decline, of Early Bronze Age subsistence and settlement patterns in the region.

### Tree crops

Not all large Palestinian Early Bronze Age sites were in locations offering the possibility of irrigation agriculture (A. Rosen 1995: 36). Perhaps as much as half of the 'built-up' area in EB II–III Palestine was concentrated in the upland areas of Galilee and the West Bank (Broshi and Gophna 1984; Palumbo 1990: 44), a pattern strikingly different from that of the Middle and Late Bronze Ages. This shift appears to be connected with the expansion of upland olive and grape cultivation (Stager 1985; Finkelstein and Gophna 1993). In Jordan, the upland areas along the northwestern margins of the plateau, where precipitation was highest, would have had good potential for the cultivation of tree crops. Published survey data is scarce, but while few large sites have been identified in this zone, a number of defended hilltop sites have been recorded in the uplands around 'Ajlun (Braemer, pers. comm.), perhaps indicative of a subsistence regime similar to that posited for the Palestinian uplands.

Turning to the botanical evidence, while cultivated olives have a larger fruit and higher oil content than the wild variety (Lipschitz *et al.* 1991: 442), the

latter would have grown in this area, and it is difficult to distinguish the two on the basis of archaeological evidence. While Lipschitz *et al.* (1991: 449) argue that Chalcolithic data cannot go beyond gathering of wild olives, Epstein (1993) has drawn attention to evidence suggesting Chalcolithic olive cultivation in the Jaulan: olive stones, a significant proportion of olive wood, and artifactual evidence possibly indicative of processing—basalt basins and ceramic spouted vats (see Epstein 1993: table 1). One alternative indicator for deliberate cultivation is the presence of olives outside environmental zones in which wild plants would be expected to occur. Examples include Chalcolithic specimens from Tulaylat al-Ghassul and Tall ash-Shuna in the Jordan Valley (Neef 1990), arguing for initial olive cultivation during the Chalcolithic. Evidence from recent excavations at Tall ash-Shuna indicates that olives are absent from early Chalcolithic deposits, dating around 5000 BC calibrated, but are present in some quantity in pits dating to the very beginning of the fourth millennium BC (calibrated). A second line of evidence is the presence of significant amounts of olive wood at EB I Tall ash-Shuna and EB II Tall as-Sa'idiyya (Cartwright and Clapham 1993). This argues for local cultivation, on the grounds that the wood is likely to have originated from the pruning and felling of trees located at no great distance from these sites. Less is known about wine production. However, the grape makes its first appearance in early EB I contexts at Bab adh-Dhra' (McCreery 1979) and Tall ash-Shuna, in keeping with the evidence from Palestine (Lipschitz 1989: 274). As the native habitat of the grape lies far to the north (Zohary and Hopf 1993), its appearance should indicate its deliberate introduction to Jordan.

How do tree crops fit into the development of the economy as a whole? Unlike cereals, these require an element of long-term investment, with olive trees requiring six to seven years between planting and fruiting (Zohary and Hopf 1993). Furthermore, cultivated fruit trees are propagated by vegetative reproduction, that is, cuttings and grafting (Lipschitz *et al.* 1991: 441), techniques differing from those required by cereals and pulses. In order to maximize the return on such crops, the ability to invest on a delayed return basis is required, as are a guarantee of sufficient stability to render the investment worthwhile and a commitment to regular maintenance (Zohary and Hopf 1993: 134–37). In the absence of evidence for an elite-directed economy, communities making corporate investment decisions appear to offer a plausible alternative mechanism.

In the Jaulan, the fact that 'equipment used for the production of olive oil was present in most households' (Epstein 1993: 143) would imply a domestic level of production. However, in the Early Bronze Age there is evidence for a marked intensification of production, underlined by storage facilities for liquid products at EB II Tall as-Sa'idiyya (Tubb and Dorrell 1993, 1994) and EB III Khirbat az-Zaraqun (Ibrahim and Mittmann 1994), suggesting that some walled sites may have acted as focal points for the collection and storage of a variety of agricultural products. Equally, new ceramic forms characteristic of the Early Bronze Age include jugs, juglets, narrow-necked storage jars and 'vats' interpreted as separators, all of which indicate an increased emphasis upon the handling of liquid commodities (Stager 1985: 176-77; Esse 1991: 119-24). Oils and fats are also likely to have provided the basis for a variety of scents. Recent analytical work has revealed the presence of vegetable oils in jars of Levantine forms found in First Dynasty cemeteries in the Nile Valley (Serpico and White 1996) and would appear to indicate some sort of trade in fine oils. Possible evidence for the presence of wood resins, such as cedar or pine, in at least one imported one-handled jug (Serpico and White 1996: 136) argues for the production and export of scents, thus combining two local specialities (oil and scented wood species) to create an added-value product.

Large-scale production of olives in upland areas, however, presupposes that a proportion of the product was destined for consumption elsewhere. In this case, there would have been value in having collection points either in or en route to likely areas of consumption. The presence of a major oil storage structure at Tall as-Sa'idiyya in the Jordan Valley (Tubb and Dorrell 1993, 1994) may indicate that a proportion of the produce of upland areas was ultimately destined for storage in, and distribution from, the larger walled sites in the lowlands. It is possible that this greater level of organization relates to a combination of improved transport and storage capabilities, stimulated by external demand from Egypt, at least during EB I (Finkelstein and Gophna 1993). However, firm evidence for large-scale Egyptian demand for such products during EB II-III is limited.

More relevant may be Manning's (1993: 47) point that emergent elites may seek to produce their own high value resources for exchange or for display and consumption. Within corporate village communities, the units in competition are more likely to have been the individual kinship-based components that together constituted the corporate group. Thus, given the lack

of evidence for 'wealth' in the form of imports and fine craft goods, it is possible that competition was centred around the production, stockpiling and consumption of valued liquids. The inclusion of a large number of jugs and juglets in Early Bronze Age burials (see burials) might be regarded as an act of conspicuous consumption, both providing for the deceased and simultaneously maintaining the value of such products by removing substantial quantities from circulation (Meillassoux 1968; Gregory 1982). It is worth noting that Early Bronze Age jugs and juglets are ubiquitous, occurring in tombs at sites both within and outside those areas best suited for the cultivation of tree crops, suggesting that their significance was recognized on a regional rather than local scale. Even were these vessels placed in tombs empty, the symbolism may still have been as described above.

### Plough agriculture

The faunal assemblages from both EB I Tall ash-Shuna and EB III Khirbat az-Zaraqun revealed a significant cattle component (Tables 5.4, 5.5), suggesting that developments in Jordan were in line with those in Palestine where introduction of the ox-drawn plough during the Early Bronze Age is now widely accepted (Grigson 1995: 267-68). As part of a general trend towards increased output, the productivity of areas of the plateau suitable for dry farming, but offering little potential for irrigation agriculture or the intensive cultivation of tree crops, could have been transformed by plough cultivation. The adoption of the ox-drawn plough has been suggested as one reason for Early Bronze Age settlement expansion in the Madaba Plains (Harrison 1997), and would surely have been equally valuable in other upland regions, such as the

Period	Cattle %	Pig %	Caprines %	Total bones
Chalcolithic	15.0	46.3	38.7	313
Early EB I	13.0	37.2	49.7	223
Late EB I	28.1	19.1	52.8	335

Table 5.4. Percentages of identified bone fragments for main species represented at Tall ash-Shuna (after Croft 1994).

Cattle %	Pig %	Caprines %
20	0.7	70

Table 5.5. Percentages of identified bone fragments for main species represented at Khirbat az-Zaraqun (after Dechert 1995).



Hauran and the al-Karak Plateau, which also show a significant expansion of settlement at this time (see settlement, p. 190, 193).

Conditions in these regions would have suited the planting of relatively large areas of low-density cereal crops. Such extensive agriculture, perhaps employing a fallowing strategy rather than the more labour-intensive rotation with pulses (Halstead 1995: 13), would have provided sufficient output to support the local population, without requiring such high levels of labour input as to render the whole system difficult to maintain. Periodic demand for additional labour for harvesting, for example, might have been met through drawing on the labour of part-time specialists, such as potters or metalsmiths, or those engaged mainly in animal herding, to whom stubble grazing may have been highly attractive.

The adoption of the ox-drawn plough permits both increased output and the growth of wealth disparities within a community (Sherratt 1981; Gilman 1991). Furthermore, the training and maintenance requirements of oxen impose a significant 'entry cost', which effectively places ownership out of the reach of small land-holders (Halstead 1995: 17). Thus, plough agriculture appears to benefit larger landowners disproportionately through increased outputs combined with the ability to control others' access to the critical resource of cattle. It appears, then, that the very strategy that seems to have permitted settlement expansion over significant areas of the Jordanian plateau was structured so as to result in growing inequality. However, this assumes that access to plough animals was mediated through patron-client relationships. Once more, the notion of corporate communities, composed of a variety of kinship-based units, would provide an alternative way of gaining access to and meeting the costs of draught animals. However, as with irrigation agriculture, this strategy holds considerable potential for exacerbating initial differences between groups in terms of size and resources, and thus wealth and prestige, and may hold the seeds of important social changes.

### **Animal raising**

The key to interpreting livestock-raising strategies lies in understanding the overall herd structure, that is, the proportions of different species. In Jordan, however, animal-raising strategies would have been partly determined by local environmental conditions (Kolska-Horwitz and Tchernov 1989: 287-88; Grigson 1995: 251-55, figs. 6a-c), with sites in the more arid

areas generally showing low frequencies of cattle and pig. Detailed information is currently available from only two sites, EB I Tall ash-Shuna ash-Shamaliyya and EB III Khirbat az-Zaraqun (Croft 1994; Dechert 1995).

### **Remarks**

The marked presence of pig at Tall ash-Shuna is probably related to the distinctive environment of the Jordan Valley, a point reinforced by the presence of significant quantities of pig bone at Chalcolithic Pella (Bourke, pers. comm.), although the decline from Chalcolithic into later EB I is in line with the general regional pattern (Grigson 1995: 254). The other striking characteristic is the increase in the percentage of cattle bone from early to late EB I, which would render bovids the major contributor to meat production. Particularly important is the fact that the late EB I period sees cattle exceed 20%, which has been suggested as a threshold figure indicative of the utilization of the ox-drawn plough (Hesse and Wapnish 1991). This shift appears to coincide with a significant increase in settlement size.

EB III Khirbat az-Zaraqun, located close to the steppe edge, provides a very different faunal sample.

The low percentage of pig at Khirbat az-Zaraqun reflects the site's location on the plateau where the water and shade favoured by pigs were not readily available. Here, too, cattle are present at a level consistent with plough agriculture (Hesse and Wapnish 1991). The predominance of sheep and goat is in line with the general picture reported from Bab adh-Dhra' (Rast and Schaub 1978: 51), reinforcing their critical role in the Early Bronze Age subsistence economy, in particular in the more arid areas.

The presence of roughly equal proportions of male and female sheep might suggest a herd kept mainly to provide wool (Dechert 1995) rather than dairy products. A contrasting pattern is seen in the goat bones, with adult females outnumbering males by 15 to 1. The shortage of evidence for the slaughter of young males, normally indicative of a dairy herd (Grigson 1995: 256-57), is striking. While this might in part result from the difficulty of differentiating between the sex of immature animals (Dechert 1995: 85), it is also possible that caprid bone from Khirbat az-Zaraqun represents but one part of a more complex, and perhaps geographically dispersed, stock-raising system.

At Khirbat az-Zaraqun, the sheep to goat ratio is 55 to 45, in marked contrast to the ratio of 75 to 25 documented at Tel Yarmouth in Palestine (Davis



1988: 145). While this may reflect herding strategy, it is possible that the higher proportion of goat bone at Khirbat az-Zaraqun reflects its proximity to the eastern steppe. Wapnish and Hesse (1988; Hesse and Wapnish 1991) have stressed that faunal remains are directly indicative of animal consumption patterns rather than local herd structures. Caprines are both valuable and mobile, and may be produced and consumed within different economies. The complex patterning of faunal remains seen at Khirbat az-Zaraqun may indicate the consumption on-site of mature female animals deriving from herds kept by groups exploiting the steppe, and that arrived at Khirbat az-Zaraqun through exchange. The existence of a steppe connection of some sort is confirmed by the presence of the remains of both ostrich and wild equid at the site (Dechert 1995).

The evidence from Jawa (Betts 1991) demonstrates clearly the existence of connections between the steppe and areas to the west. Furthermore, recent research in the Syrian Hauran (Braemer *et al.* 1993; Braemer and Échallier 1995) suggests a role for Early Bronze Age sites in that area in connection with animal-herding strategies. Although caprine herding in the Jordanian steppe has a long history (Garrard *et al.* 1996), the degree of integration between steppe and farming groups remains unclear. However, one effect of agricultural intensification in the moister areas of Jordan may have been to encourage the development of increasingly close economic links between the west and a steppe economy focused on livestock raising, thus adding an additional block to an increasingly integrated regional economy, and one more element to a heterarchical organization.

The notion of a regionally specialized economy integrated through upland-lowland relationships has been advanced for Palestine (Esse 1991: 156-58; Finkelstein and Gophna 1993), and interactions between the larger sites in the Jordan Valley and the uplands and perhaps steppic areas to the east may reflect a similar structure of regional economic specialization. Physical evidence includes the presence of upland crops at Bab adh-Dhra', but more significant may be the generalized east-west distribution of Early Bronze Age ceramic style zones (see pottery, p. 204-5, 209).

### *Equids and transport*

The evidence discussed above suggests an intensified, multi-component Early Bronze Age subsistence economy, involving new products and technology, the

growth of centralized storage and regional specialization within an increasingly integrated economy. The effective operation of such a system would have required a reliable and economical means of transport, the lack of which would have acted as a significant constraint upon interregional connections. Pack animals, the donkey in particular, would have offered just such a mechanism. While animal transport may well have begun during the Chalcolithic (Epstein 1985; Grigson 1987; 1995: 258), the evidence (and requirement) for pack donkeys becomes clear during EB I (Ovadia 1992: 20-22). In addition to transporting produce, donkeys would also have offered a means of transporting water, tools and building materials to both settlements and to agricultural land, and their employment on a substantial scale would surely have constituted a significant enabling factor in wider economic developments. Actual faunal evidence is limited, although domestic equids were present at Khirbat az-Zaraqun (Dechert 1995). This, however, is the case in many periods (Ovadia 1992: table 1), and probably results from the limited role of equids as sources of meat (Grigson 1995: 258), with the result that their remains were rarely incorporated within on-site domestic refuse deposits.

### *Discussion*

Although the existence of major structures with a significant storage function is documented (see administrative structures, p. 176), there is also ample evidence for storage of cereals and pulses at household level. Examples include a plaster-lined bin at EB II Tall as-Sa'idiyya (Tubb and Dorrell 1993), both jars and wooden containers at Tall Abu al-Kharaz (Fischer 1993: 285), and several thousand chick-peas in an EB III domestic structure at Tall al-'Umayri (Herr *et al.* 1991: 10). Many aspects of Early Bronze Age agriculture offered scope for increasing production through the investment of human labour—irrigation and water storage, terracing, extensive weeding. In the absence of clear evidence for elite control over agricultural production or storage, we should perhaps view kinship-based corporate groups as the means of coordinating economic activity on a supra-household level.

Recent reviews have seen the Chalcolithic–Early Bronze Age transition as a restructuring rather than a complete break (Joffe 1991; 1993: 41-48). One of the most striking features of these changes is the disappearance of familiar Chalcolithic prestige items, for which

no Early Bronze Age equivalents have been identified. The disappearance from the record of a variety of fine artifacts, the 'ritual paraphernalia' of Joffe (1993: 37), may reflect a shift from wealth to staple finance, a move away from symbolically charged artifacts as a source of prestige (Levy 1993, 1995b), and towards the basing of status upon access to physical resources. The shift may well have resulted from the realization that an alternative path to power existed through the exploitation of new agricultural technologies. These were able to provide the material capital that would enable even higher levels of production and accumulation to be obtained and thus further increase status. The result would have been a new focus upon investment in physical resources and the production of storable products. Egyptian interest in particular commodities that may have given these a 'cachet' in the eyes of local communities perhaps reinforced the process.

### *The changing economy and power potentialities*

A degree of social inequality has been posited for the Chalcolithic with power based upon the control of symbolic artifacts, rare imported commodities and specialist craft production (Joffe 1993; Levy 1993, 1995b). Reconstructions favouring a 'gap' between the Chalcolithic and EB I periods have been contradicted by recent radiocarbon evidence (Joffe and Dessel 1995; Carmi *et al.* 1995; unpublished early EB I dates from Tall ash-Shuna cited above). However, the Early Bronze Age as outlined here suggests a society organized rather differently from its Chalcolithic predecessor. Changes in the nature and scale of subsistence activities offered means to power (through access to land, labour and surpluses for reinvestment) that were within the control of individual communities, and that would have diminished the significance of participation in the circulation of prestige goods. This point alone would explain some of the most striking differences between the material remains of the two periods.

Equally important to the intensification of agricultural production is the ability to deploy human labour (Knapp 1990, 1993: 88). In the absence of clear evidence for an EB I–II administrative elite, corporate groups could have provided units sufficiently large to underwrite tasks requiring substantial initial investment while offering an increased, but delayed, return, such as the construction of water storage

facilities, or the rearing and training of cattle for the plough. Such groups may have assumed the functions of planning and coordination hitherto attributed to elites.

Many have argued that such investment-led intensification of subsistence activities results in an increased potential for the development of inequality (Sherratt 1981; Gilman 1991; Halstead 1995). However, the importance of such groups, and the possibility of inherent intergroup conflict, may have acted to hinder the development of monopoly control over production by maintaining a distinction between structures of political and economic power. In this view, economic production may have remained rooted in such corporate groups, while political power may have proved a more fluid and transitory affair, shifting between groups and between settlements according to a host of local factors. Under such circumstances, walled settlements might be understood not only as a means of protection for a community and its stored agricultural produce, but also as a key element in transitory political strategies concerned with the competitive expression of power through the creation and embellishment of built monuments. Many of the apparently sharp contrasts between the archaeology of the Chalcolithic and Early Bronze Age periods can be accounted for through their different subsistence possibilities and related settlement organization, and the contrasting modes through which power was expressed.

### **Settlement evidence**

The subsistence data reviewed above provides a basis for reaching an understanding of Early Bronze Age settlement evidence. The new subsistence possibilities are likely to have had a significant and highly varied impact upon the economic potential of different regions of Jordan, with the result that regional settlement organization should be expected to differ quite substantially from that of previous periods.

### *Limitations of the data*

Before examining regional settlement data in detail, it is appropriate to discuss the limitations of the available evidence.

- a. Good survey data is only available for a small percentage of Jordan: in many areas basic evidence for settlement distribution is lacking. As a result, certain areas for which information is available



- must be asked to 'stand for' larger, unsurveyed regions.
- b. In many cases, evidence is published in preliminary form only. Furthermore, this comes from surveys undertaken with varied aims, resources and field methodologies. The result is that data from different areas is not always directly comparable. Thus, the interregional comparisons attempted below are no more than broad interpretative statements, based on the sketchy information available. Our knowledge of the distribution of small sites in particular is skewed towards those few areas that have been subject to systematic, intensive survey coverage (Harrison 1997: figs. 2, 3). Elsewhere, only the largest sites are generally documented.
  - c. Many of the larger settlements represent multi-period occupations, which present familiar problems (Joffe 1993: 13-14), such as the over-representation of material from the latest or most extensive phase of occupation, and a tendency to quote a single figure for site area regardless of fluctuations through time.
  - d. The dating of survey evidence is dependent upon the interpretation of surface pottery. Chronological precision is thus limited both by our knowledge of the local ceramics and the size and composition of the available sample. Many sites can be characterized only as EB II-III, which presents problems for the analysis of settlement organization, all the more so given the possibility that individual sites may have been occupied for quite short spells within these long periods. Re-evaluation of dates is rarely possible as few researchers have published ceramic evidence on a site-by-site basis.
  - e. In Jordan's highly dissected terrain, geomorphological processes are likely to have had a significant and uneven impact upon the nature of the visible settlement record (Joffe 1993: 12; Banning 1996). For example, heavy post-Early Bronze Age sedimentation occurring in the vicinity of Tall al-'Umayri southwest of modern 'Amman (Schnurrenberger 1991: 372-74) is likely to have considerably reduced the visibility of Early Bronze Age settlement in this area. However, few published surveys appear to have attempted to counter this by the use of appropriate sampling techniques, and so their results may not reflect closely original settlement distributions.

## Regional settlement data

### North Jordan Plateau

Although systematic survey data is sparse, it is clear that northwestern Jordan supported a number of relatively large Early Bronze Age settlements, reflecting its favourable environment, with Mittmann (1970: 256-64) recording a number of substantial Early Bronze Age sites, including the walled settlements of Khirbat az-Zaraqun and Khirbat ar-Rahub located only 5 km apart. Detailed survey of the area around Khirbat az-Zaraqun (Kamlah n.d.) has revealed several quite extensive Early Bronze Age settlements on the plateau northwest of Irbid, some of which were occupied during EB I as well as EB II-III.

### The Jordan Valley

Low rainfall and the infrequency of reliable springs ensured that major Early Bronze Age sites were primarily located at the edge of the valley floor at the points where the major side wadis enter the valley from the eastern escarpment (Ibrahim *et al.* 1988: 171). Most of the wadi systems reveal one major settlement, frequently walled (Table 5.6). A. Rosen's (1995) suggestion that Early Bronze Age sites on the coastal plain of Palestine were positioned to exploit seasonal wadi floodwaters appears highly suggestive, and the positioning of major settlements within the Jordan Valley might imply the use of similar irrigation techniques.

The lack of intensive surveys renders it hard to reconstruct local settlement organization in detail. Most field projects have concentrated upon the excavation of individual sites, paying little attention to the regional settlement context. Exceptions include survey work in the 'az-Zarqa' triangle', and in the area immediately north of the Dead Sea (Helms 1992; Prag 1992). In the former, EB I occupation is dominated by the extensive, apparently unwalled site of Tall Umm Hammad alongside which existed a number of smaller dispersed communities. However, EB II-III saw a marked concentration of population upon the walled site of Tall Handaquq (S). This was followed in EB IV by a return to smaller dispersed settlements. A similar trend was reported from a survey of the lower az-Zarqa' Basin to the east (Gordon and Villiers 1983). Work in the southern part of the Jordan Valley (Prag 1992: 155) reveals a similar picture with EB II-III witnessing the appearance of walled sites and a



Site	Wadi system	Periods of occupation EB I–III	Nature of occupation	Subsequent occupation
Tall ash-Shuna	W. al-'Arab	EB I, EB III	Large unwalled EB I, smaller EB III	Hell
Tall ash-Sakhineh*	Small wadi S. of W. al-'Arab	EBA	?	MB, LB, Iron
Tall al-'Arab in*	W. Ziqlab	EBA	?	MB, LB, Iron
Pella/al-Husn	W. Jirm	EB I–II	Walled EB I–II	Major MBA and LBA
Tall al-Husn	W. Jirm	EB II ?	Major structure, EBII	Small MB/LB
Tall Abu al-Kharaz	W. al-Yabis	EB I–II	Walled 4 ha	Smaller LBA
Ad-Debab*	W. az-Zarqa'	Chalco-EB	?	EB IV, Classical
Tall al-Handaquq (N)	Wadi Sarar	EB I–II	Walled 7 ha, with larger sherd scatter	None
Tall as-Sa'idiyya	W. Kufrinjeh	EB II	Walled? 8 ha	Small, end of LBA
Tall al-Handaquq (S)	W. az-Zarqa'	EB IB–III ?	Walled, 15 ha	None
Tall Umm Hammad	W. az-Zarqa'	EB I	Unwalled, 20 ha scatter	EB IV
Tall al-Qos*	W. Rajib	EB I–II ?	?	Iron Age
Tall al-Hammam	W. Kafraïn	EB III	Walled, 15 ha ?	MB/LB
Tall Mustah*	W. Kafraïn	?	?	LBA, Byz
Bab adh-Dhra'	W. al-Karak	EB I–III	Walled, 4–8 ha	None
Numayra	W. Numayra	EB III	Walled, 1 ha	None

\*The information is derived from Ibrahim *et al.* (1988), with no subsequent confirmation.

Table 5.6. Early Bronze Age sites on the east side of the Jordan Valley (listed from north to south).

corresponding decline in the actual number of settlements compared to EB I. These areas appear to demonstrate the pattern of population agglomeration familiar from the Palestinian data (Esse 1991; Joffe 1993). However, a contrasting pattern is seen in some areas of the valley. In the north, for example, at Tall ash-Shuna, an early EB I settlement estimated at c. 5–10 ha, was succeeded by a larger late EB I settlement, which, covering c. 15–20 ha, was larger than many EB II–III walled sites. However, there is little evidence for a substantial EB II occupation in this area. Here, then, the agglomeration process (if such there was—no reliable survey data is available) took place rather earlier, and there appears to have been local settlement disruption during EB II. However, the site revealed an EB III occupation, characterized by the presence of Khirbat Kerak ware, no less extensive than the 5–10 ha estimated for the early EB I. This is all the more surprising in the light of the paucity of EB II evidence and may raise questions concerning the reliability of the ceramic criteria used to define occupational periods (see Philip and Baird 2000).

With the exception of Tall ash-Shuna however, there is an apparent absence of major EB III settlements on the east side of the northern part of the valley. Tall ash-Shuna apart, the most northerly fortified EB III settlement is Tall Handaquq (S), a marked change in settlement distribution compared to EB II, which saw the presence of several fortified sites in this part of the valley (Table 5.6). A similar contraction in settlement

numbers between EB II and EB III is also documented in the Coastal Plain and Jezreel regions (Palumbo 1990: 47, fig. 19), where it has been interpreted as indicating the concentration of population into a small number of ever-larger centres. However, the southern part of the valley sees an increase in the number of walled settlements during EB III, a situation more in line with that seen in southern Palestine (Finkelstein 1995a: 63). The different patterns of settlement development within the Jordan Valley may reflect not just subsistence factors, but may be related to those processes governing the appearance of Khirbat Kerak ware (Philip 1999) (see pottery, p. 208).

#### *Upland areas*

##### *'Ajlun*

The highly localized variations in geomorphology and ground cover conditions characteristic of dissected upland territories can have a striking effect upon site recovery rates (Banning 1996: 29–31). While this renders many details of settlement development in the 'Ajlun highlands uncertain, the broad outlines of a settlement history are now becoming clear. Although Neolithic occupation is known in this region (Kuijt *et al.* 1991; Banning *et al.* 1994), settlement in the uplands appears to have undergone a major expansion during EB I–II, including the appearance of defensive walls at some sites (Sapin 1985, 1992; Mabry and Palumbo 1988). While Sapin (1992: 171) argues for

an abatement of settlement with EB III, others note that the ceramic criteria for distinguishing the local EB II and III are uncertain (Mabry and Palumbo 1988: 289). A phase of Chalcolithic settlement recently documented in Wadi al-Yabis has been connected with the cultivation of tree crops, for which this area was particularly well suited (Mabry and Palumbo 1988: 189). Thus, settlement increase in EB I would appear to relate to the expansion, rather than the initial adoption of arboriculture. The broad contemporaneity of this development with the growth of large Early Bronze Age settlements in the lowlands appears to support the view that the two processes were both aspects of the development of an increasingly integrated regional economy.

#### East of Jarash

In contrast to the Mediterranean environment of the western uplands, the more arid areas east of Jarash offer rather different subsistence possibilities (Sapin 1985). Early Bronze Age exploitation of this terrain is represented by settlements, enclosures, reservoirs, tumuli and rock art and shows an extent and intensity far exceeding that seen in the second millennium BC, a fact that Sapin (1992) attributes to soil degradation resulting from over-exploitation of this fragile environment during the Early Bronze Age.

A large number of EB I sites have been reported from the Wadi az-Zarqa', ar-Rumman and Jarash areas, at least some of which appear to show ceramic links with both the central Jordan Valley and the steppe site of Jawa (Gordon and Villiers 1983: 288; Hanbury-Tenison 1987; Helms 1987: 55-60; Betts 1991: 74-75; 1992: 47-48). While it is difficult to distinguish between agricultural and pastoralist sites on the basis of surface-collected data, proximity to water sources would appear to offer one possible criterion (Hanbury-Tenison 1987; Sapin 1992) and it is very likely that some of the extensive physical remains in this area relate to the activities of EB I animal-herding groups (or the animal management activities of those groups responsible for the agricultural sites in the region). In contrast, EB II-III sedentary occupation, at least in the lower az-Zarqa' Basin, appears less extensive. Agglomeration of population within the single enclosed site of at-Tall at 2.4 ha cannot account for the general decline in overall settled area.

One might suggest that the apparent high visibility of mobile groups during the fourth millennium BC reflects some particular aspect of the manner in which the stock rearing and agricultural components of the

population were integrated during the EB I period. One possible explanation is that the two were relatively little distinguished during the earlier fourth millennium with economic activity in this region constituted at the level of relatively small, autonomous groups. Recent survey on the fringe of the arid zone in the middle az-Zarqa' Basin has identified a striking range of Early Bronze Age occupation, elements dating to EB II in particular (Chesson *et al.* 1995: 122). This includes both walled and open settlements, as well as a series of stone circles associated with basalt-tempered pottery of a type found at Jabal ar-Reheil in clear EB II contexts. In this area, a number of different settlement forms may well have coexisted, while the range of variability within individual forms (village, for example) remains to be explored. Moreover, there is no indication as yet that the walled settlements lay at the apex of a regional settlement hierarchy; the concept of heterarchy seems more useful.

The ceramic parallels between the az-Zarqa' and Jordan Valleys noted in EB I are continued into EB II (Chesson *et al.* 1995: 120, fig. 3). Tall as-Sukhne, at 3.5 ha, represented a walled EB II settlement of some significance, but was apparently occupied only intermittently (Chesson *et al.* 1995: 116), reinforcing our suggestion that walled settlements should be seen as but one element that could be drawn upon as part of the flexible construction of sociopolitical units, and need not have been associated exclusively with sedentary agricultural groups.

If we accept the idea that human groups may alter their respective emphases upon mobile and sedentary subsistence strategies as circumstances require (LaBianca 1990), we might view the apparent decline in settlement numbers in the lower az-Zarqa' and Jarash areas during EB II-III (Gordon and Villiers 1983; Gordon and Knauf 1987; Hanbury-Tenison 1987) as indicative of the emergence of a less visible, more fully mobile sector within the population. Such a development might be viewed as a response to a demand from more sedentary communities for animal products, which had grown to such a level as to encourage the development of a distinctive, specialist pastoralist sector. Moreover, the appearance of walled settlements, such as Tall as-Sukhne (and in southern Syria [Braemer 1993b; Braemer *et al.* 1995]), suggests that groups adopting flexible, resilient subsistence strategies were able to appropriate and reinterpret a variety of contemporary settlement forms characteristic of the more fertile regions. While the above reconstruction is no more than a suggestion, the critical points are

the existence of contrasting regional patterns of development within Jordan and that formal similarities between settlement types should not be equated with equivalence of function.

#### Central Jordan Plateau

##### Madaba region

Surveys in the Madaba Plain (Harrison 1997) reveal a tendency for EB I settlement clusters in wadi systems along the western edge of the plateau to be replaced by single larger settlements during EB II–III, the classic agglomeration pattern observed elsewhere in the southern Levant (Gophna and Portugali 1988; Esse 1991; Finkelstein and Gophna 1993; Joffe 1993; Falconer 1994). Tall Madaba, with an *estimated* Early Bronze Age area of 16 ha, would have constituted a regional centre as large as all but the biggest of those known from Palestine (Finkelstein 1995a). In this case, the absence of Early Bronze Age settlement beyond the 250 mm isohyet (Harrison 1997: 16) confirms the association of sedentary activity with the limits of dry farming, although it appears likely that settlements in these areas would, through necessity, have practised a more resilient subsistence strategy than those in the side wadis of the Jordan Valley. Once again, it is interesting to note that quantitative studies of settlement data (Harrison 1997: fig. 9) indicate little intersite economic differentiation, and betoken a low level of settlement integration. While large sites exist, they do not form the upper tier of a clearly structured hierarchy, but may be better viewed as possibly short-lived epiphenomena.

Several of the larger EB II–III sites on the plateau developed from smaller Late Chalcolithic/EB I occupations (Harrison 1997: table 3), suggesting settlement expansion from the wadi systems on to the plateau during the later fourth millennium. Given the nature of the plain, such sites would almost certainly have been connected with extensive plough-based cereal cultivation. However, cattle are heavily water dependent, and the rarity of springs and reliable streams on the plateau would have rendered water management techniques, such as dams and reservoirs, necessary in order to exploit the plain as an agricultural rather than a grazing resource (note the existence of enclosed depressions at Tall Jalul [Harrison 1997: 17]). However, the area has long provided summer grazing for mobile groups exploiting either the steppe to the east or the Jordan Valley to the west (Prag 1985, 1991; LaBianca 1990), and their presence during the Early Bronze Age cannot be ruled out.

##### Al-Karak region

While the al-Karak Plateau has been surveyed in recent years, the lack of consistently recorded data on site areas renders inappropriate the analytical techniques employed in the case of the Madaba Plains. The major site of al-Lajjun typifies the problem, with site area quoted variously as 8 ha (Steele 1990), 14 ha (Homès-Fredericq and Hennessy 1989: 360) and 17.5 ha Glueck (1934: 44).

However, despite some discrepancies between the settlement data as reported by Miller (1991) and Steele (1990), it is clear that there was a large increase in both site numbers and areas from EB I to EB II–III, and that there existed a strong association between site location and optimal positions for rain-fed agriculture (Steele 1990: 11–13, fig. 5). At least six sites, ranging between 1 ha and 8 ha, are said to reveal enclosure walls, with Steele (1990: 16) arguing for an EB II–III settlement hierarchy with fortified sites ranked above the rural component, but below a possible central place tentatively located at Adir. However, the variability in the size of defended sites must raise questions about the extent to which they can be considered as 'equivalents' in any hierarchical scheme. Furthermore, given the lack of fully quantified settlement data, the absence of evidence regarding either the duration of occupation at individual sites or the degree of contemporaneity of occupation at different sites (we are speaking of some 700 years after all), and the contrary evidence from the Madaba Plains, attempts to reconstruct settlement hierarchies on the al-Karak Plateau appear somewhat premature. It is preferable to view the al-Karak Plateau as one more example of a poorly integrated heterarchical structure.

However, another aspect of the data from the al-Karak Plateau deserves consideration. This is the fact that Early Bronze Age settlement in this area appears to extend significantly farther east than is the case during the second millennium BC (Miller 1991: 307), a pattern reminiscent of that seen in Wadi az-Zarqa' (Chesson *et al.* 1995: 122). Also striking is the degree of continuity of occupation from EB II–III into EB IV witnessed in the region (Palumbo 1990: 98–102). Parallels with the situation in the az-Zarqa' Basin, where sedentary EB IV settlement has also been recorded (Palumbo 1990: 58–59), suggest that this is attributable to the fact that neither of these areas, both located near the limits of dry farming, was particularly suited to highly intensive agricultural strategies. Low-intensity, extensive crop



production in combination with ready access to the steppe would have provided the basis for a resilient food system (LaBianca 1990: 20) involving a significant animal-herding component. Such a structure would have been less inclined to collapse under pressure than the more highly specialized systems posited for areas to the west. It is worth reiterating again that the presence of walled settlements in two areas does not demand the existence of a common socioeconomic structure.

#### *Wadi al-Hasa and settlement in the southern arid zone*

Surveys in recent years have documented a considerable body of evidence for Early Bronze Age occupation in areas of southern Jordan where local annual precipitation is insufficient to support widespread intensive agricultural activity. The few large Early Bronze Age settlements in this area are restricted to alluvial terraces situated adjacent to major wadis draining the plateau to the east (Donahue 1981: 140) and which offer some potential for irrigation. In that sense, they resemble the larger settlements of the Jordan Valley to the north.

However, survey in Wadi al-Hasa and the southern Ghor indicates the presence of a significant number of Early Bronze Age 'campsites' and 'corrals' in areas less obviously suited for agriculture, which are thereby taken to indicate pastoralist activity. However, in this case there appears to be a marked predominance of EB I over EB II–III settlement (MacDonald *et al.* 1988: 155–66, tables 24–26; 1992: 61–71), the reverse of the situation documented in the al-Karak Plateau and Madaba Plains. The discrepancy may be partly methodological. For example, the reporting of lithic scatters in the Southern Ghor (Neeley 1992) contrasts with their absence from the catalogues of Chalcolithic–Early Bronze Age sites recorded in the al-Karak Plateau (Miller 1991). However, the presence of EB II–III sites in areas with good agricultural potential renders the absence of indications of contemporary evidence from smaller sites rather odd. In fact, this raises the question of the relationship between site function and the range of diagnostic material present. Of the 38 sites in Wadi al-Hasa listed as EB I (MacDonald *et al.* 1988: table 4), no less than 30 produced 10 or fewer diagnostic sherds. Given the small samples, and an environment favouring small or seasonally occupied settlements, the Early Bronze Age ceramic inventory is likely to have been impoverished and to lack the classic EB II–III diagnostic forms, a point borne out by the presence of

29 sites in the southern Ghor classed as 'Early Bronze Age' without further qualification (MacDonald *et al.* 1992: 71).

MacDonald *et al.* (1988: 166) also note that some of the EB I 'camp sites' resemble those known from Sinai and the Negev, which are traditionally dated to EB II on the basis of their alleged association with Arad (Beit-Arieh 1981). Recent radiocarbon evidence (Avner *et al.* 1994) now suggests that the Negev was occupied continuously throughout the Chalcolithic and Early Bronze Age, and that assemblages consisting of hole-mouth vessels and chipped stone alone cannot allow occupation to be placed more precisely than within a broad Chalcolithic–Early Bronze Age phase (Sebbane *et al.* 1993: 43–45). In this light, the data from southern Jordan could be interpreted as evidence for a continuous exploitation of the region throughout the fourth and third millennia, a scenario more in keeping with settlement evidence from areas to the north and west. Similarly, while Henry (1995: 354) equates 'Chalcolithic' sites in the Hisma, characterized by corrals and curvilinear structures and producing small quantities of locally manufactured thick, heavily tempered plain pottery, with 'Timnian' material from the west side of the 'Arabah, radiocarbon dates appear to fall between 5700 and 4000 bp (Henry 1995: 359, fig. 15.2), that is, well into the Early Bronze Age reinforcing the points made above.

Fourth- and third-millennium BC evidence from southern Jordan is far more striking than that of the 2nd millennium (see MacDonald *et al.* 1988: tables 168–70), with the evidence, such as pens and corrals, presumably connected with animal management activities especially prevalent. This would appear in keeping with the idea expressed above of the growth during the Early Bronze Age of a specialized animal-raising economy in the arid zone. The faunal evidence from Jabal Jill (Henry 1995: 368–69), which produced 74% caprine and 25% gazelle bones, implies an unusual combination of herding and hunting strategies, and might indicate the extent to which caprine raising for 'export' had become integrated within the subsistence strategies of diverse steppe-based communities.

#### *The evidence from eastern Jordan*

Early Bronze Age exploitation of eastern Jordan is poorly understood. Two sites in Wadi al-Jilat have been attributed to the Early Bronze Age (Garrard 1989) and fourth–third-millennium sites have been identified elsewhere (Betts 1991: 189), but there is insufficient

data to describe a pattern. However, recent evidence from southern Syria appears to indicate the development there of a subsistence strategy based around a small number of larger Early Bronze Age settlements, in locations suited to the capture of seasonal run-off water. This is markedly different from the pattern observed in southern Jordan, and has recently been put forward as evidence for the periodic collecting together of animals, perhaps for counts, slaughter or shearing (Braemer *et al.* 1993; Braemer and Échallier 1995; Échallier and Braemer 1995). These sites, which appear to have been occupied, perhaps intermittently, throughout most of the Early Bronze Age, may provide a context for the otherwise rather anomalous EB I site of Jawa, and may indicate the emergence of specialized animal management strategies in the eastern steppe during the fourth millennium, presumably in response to demand from communities to the west. Clear ceramic links between the larger steppe sites and their western counterparts (Betts 1991: 103–104, table 3; Braemer and Échallier 2000: 406) support this possibility.

#### *Southern Jordan*

Evidence from southern Jordan is both limited in quantity and difficult to interpret. The importance of the region is clear from the presence of major copper deposits, apparently exploited as early as the Chalcolithic period to supply ores to sites in southern Palestine (Hauptmann *et al.* 1992; Shalev 1994). Recent research points towards a largely continuous exploitation of the Faynan ores throughout the Early Bronze Age, with evidence for copper-working now known from sites assigned to EB I, EB II and EB III–IV periods (Fritz 1994; Adams and Genz 1995: 14; Adams 2000). However, the critical questions concerning the organizational basis of copper production, and the means by which control was exercised over this important resource, cannot yet be answered.

Tall Magass, located 4 km north of al-'Aqaba, has also produced evidence for copper working, and while a significant Chalcolithic occupation is clear (Khalil 1987), the presence of Canaanite sickle blades suggests some Early Bronze Age activity (Khalil 1988: 93, e.g. fig. 11.4). The difficulty of identifying the transition between the Chalcolithic and Early Bronze Age in southern Jordan is exemplified by the site of Wadi Fidan 4 which, while originally classed as 'Chalcolithic' (Adams and Genz 1995: 19). In contrast to the rather localized ceramic assemblage from this

site, pottery from the early third-millennium BC site of Barqat al-Hatiye shares many features of shape and surface treatment with more northerly EB II forms (Fritz 1994), and suggests that the south was drawn further into regional interaction systems as the Early Bronze Age progressed. There is clearly much yet to be understood concerning the nature of Early Bronze Age developments in southern Jordan and their connection with the exploitation and control of local copper resources.

#### *Major patterns in settlement data*

Patterns of settlement development in Early Bronze Age Jordan are regionally differentiated. This applies not simply to the differences between the arid and fertile zones, but between different areas within these zones. However, the apparently disparate developments may reflect regional specialization within an increasingly integrated interregional economy.

The distribution of Early Bronze Age settlement is in striking contrast to patterns seen during the second millennium BC, when major sedentary occupations appear to be more heavily concentrated in the north and west. In the Jordan Valley, the few Middle Bronze Age sites located south of Wadi az-Zarqa' (Najjar 1992) offer a sharp contrast to the more southerly spread of walled EB II–III settlements (Ibrahim *et al.* 1988; Prag 1992: 155). In the case of sites in the Jordan Valley, this may be attributable to the effects of erosional regimes on irrigation possibilities, as described above, but a similar pattern is also seen in areas where irrigation was less feasible. The scale of Early Bronze Age settlement in Wadi az-Zarqa' and the al-Karak Plateau, for example, contrasts with the settlement record of the second millennium BC (Dornemann 1983; Miller 1991), while in the area south of 'Amman, as a whole, it is only with the Iron II period that we see the re-emergence of a major sedentary component resembling that documented for EB II–III (MacDonald *et al.* 1988; Miller 1991).

While this may reflect environmental changes towards the end of the third millennium BC, the data for the Holocene is patchy (Goldberg 1994: 99), and the various strands of palaeoenvironmental evidence are by no means in agreement (see papers in Bar-Yosef and Kra 1994 and discussion in A. Rosen 1995). It is worth noting that any particular climatic shift would have had a differential impact upon the various regions of Jordan. Increased rainfall may cause erosion of agricultural soils in one area and better



crop growth in another. On the whole, environmental models operate at a scale well beyond the level at which such developments were perceived, and responded to, in human terms.

In fact, it may be useful to consider the reason for the development of the distinct Early Bronze Age settlement pattern in the first place. It can be argued that this is indicative of a form of Early Bronze Age socio-economic organization, within the more arid regions in particular, that is not repeated during the Middle and Late Bronze Ages. In Palestine, too, a significant number of large Early Bronze Age centres were not reoccupied in the second millennium BC (Broshi and Gophna 1986; Falconer 1987; Finkelstein and Gophna 1993), suggesting a real qualitative difference between the settlement landscapes of the third and second millennia BC, and highlighting the scale and complexity of Early Bronze Age settlement development in the region. Settlement data appear to confirm the initial suggestion that the Middle and Later Bronze Ages were not simply the revival of Early Bronze Age 'urbanism'.

Analyses of settlement data (Falconer 1994: 315-17; Falconer and Savage 1995; Harrison 1997) suggest that the Early Bronze Age is characterized by poorly integrated settlement systems, showing significant regional differentiation. The existence of regional settlement hierarchies focused around the largest sites has not been demonstrated, suggesting that analyses framed in terms of 'central places' (e.g. Finkelstein 1995a) may be inappropriate for Early Bronze Age Jordan. Rather, the settlement landscape has been characterized as a patchwork in which the largest units were superimposed upon a much broader resilient network of smaller sites following their own courses of development (Falconer and Savage 1995: 55). This would suggest that interregional integration was to a great extent constituted at a day-to-day level between individual communities and their members, and not channelled through a few major sites.

At present, we lack settlement data that is sufficiently fine-grained to allow a comparison of individual regional settlement patterns before, during and subsequent to the florescence of large sites, but the settlement data, in combination with the limited evidence for institutionalized control structures within walled sites, argues against their being assigned a strictly causal role in local socioeconomic developments, and that the subsistence base could function with or without the presence of major local settlements. The settlement data argues for a flexible system, free to integrate in a variety of ways, rather than supporting a

rigid hierarchical structure. Such a construct would appear consistent with the notion of walled sites in some regions as representing temporary expressions of political concerns, rather than economic central places. The idea of walling a site would, therefore, have formed an ideological resource, open to reworking according to specific local concerns. Thus, the presence of walled sites in different locations may need not imply similar underlying socioeconomic structures. The concentration of Palestinian Middle Bronze Age walled sites in a more restricted number of locations than was the case in the Early Bronze Age (Falconer 1994: 326) appears to support the notion that the placing of such sites in the Early Bronze Age was not purely a function of economics.

### *Mobile groups*

A form of mobile animal herding, closely integrated with a sedentary agricultural economy, described as village-based transhumance, has been documented during the fifth millennium BC in southwestern Palestine (T. Levy 1992b: 73; 1995b: 232). However, settlement evidence in both southern and eastern arid zones suggests the emergence during the Early Bronze Age of significant, if regionally differentiated, systems of specialized livestock management providing secondary animal products for sedentary communities.

Given the location of many walled settlements in the Rift Valley and along the edge of the steppe, there are grounds for suggesting that the inhabitants of these sites too were involved to some degree in seasonal movement, with some perhaps quite extensively involved with mobile groups. (Note Finkelstein's [1990, 1995b] suggestion that Arad represented a gateway community for interaction between mobile and sedentary groups.) However, this would have constituted a rather different system from the more specialized animal management posited for groups exploiting the arid zone. These more localized processes of nomadization and sedentarization, perhaps fluctuating year-to-year, region-to-region, would have provided a relatively fine-tuned response to local environmental, economic and sociopolitical factors. The on-site storage of agricultural staples, combined with the possibility of seasonal variations in the size of the resident population, may have given added emphasis to wall construction as a means of protecting valuable community resources.



## Highland–lowland–steppe connections and the growth of a regional economy

There is both ceramic (east–west style zones) and economic evidence (e.g. lowland oil storage) to argue for a connection between settlement development in upland and lowland areas. I have suggested that different regions followed agricultural strategies best described as ‘subsistence plus’ with each developing a specialist component suited to the local environment. Each would, therefore, have contributed specific resources to an increasingly integrated regional economy. Intensive horticulture in the valley would have exploited the potential of floodwater irrigation while requiring a significant labour force. Extensive plough agriculture would have rendered possible the production of agricultural surpluses in suitable areas of the plateau. The cultivation of fruit trees in well-watered upland zones would have supplied a product suitable for exchange, perhaps with the larger valley bottom sites, while the development of a mobile pastoralist component would have catered for sedentary communities’ need for animal products, as well as providing a pool of additional labour that could be drawn upon as required. Critically, these changes appear to have taken place in the absence of convincing evidence for the existence of institutionalized elite power.

## The material remains: burial data

### A case study: graves from Bab adh-Dhra’

The sole Jordanian cemetery producing material from all periods of the Early Bronze Age is located just outside the walled settlement of Bab adh-Dhra’. Despite some local characteristics, examples selected from this site will be used as the basis for discussion.

EB IA burials occur in shaft and chamber graves (Figure 5.8). Tomb A 78 (Schaub 1981a) consisted of a vertical circular shaft opening into four chambers, the entrance to each of which was closed by a blocking stone. The disarticulated skeletal remains of several individuals formed a pile in the centre of each chamber. Skulls were usually placed to the left of the pile, while grave goods, mainly ceramic vessels, were placed around the edge of the chamber or to the right of the entrance. The graves contained both adult and child burials, and are assumed to represent family groups. Finds were dominated by pottery, mostly bowls (50–60%), jars and juglets with wide necks (Figure 5.13.1–2). Other artifacts, such as limestone

maceheads, shell bracelets, basalt bowls and clay figurines (Figures 5.20.2, 5.23), occur less frequently.

EB IB tombs (Schaub and Rast 1989) are characterized by shafts opening into a single chamber, with entrances that include a threshold stone flanked by stone orthostats. A similar practice has been observed at the EB I pillared hall at Hartuv (Mazar and de Miroschedji 1996), suggesting an overlap between structures used by the living and the dead. EB IB graves contain more articulated burials, and disarticulated remains when found are not placed in the deliberate piles characteristic of EB IA. Some EB IB graves are circular, mudbrick structures with a semi-circular forecourt; the apparent resemblance to the entrance shaft of contemporary rock-cut tombs may be intentional.

EB II–III funerary architecture consists of rectangular mudbrick structures 7–11 m long and 4–7 m broad, termed ‘chapel houses’ (Figure 5.9). The entrance was in the long side and had a stone threshold, giving the tombs a close resemblance to the layout of the so-called ‘broadroom’ house. In many cases, two monoliths flanked the entrance, a feature with parallels in both stone-built tombs and other architectural units. Some EB II chapel houses were circular, with walls corbelled inwards and a central slab, presumably the base for a roof support. While these carry over certain design features from shaft and chamber graves, parallels with circular architecture at northern sites, such as Tall ash-Shuna (Figure 5.4) are also close.

Chapel houses could contain more than 100 disarticulated burials, in some cases forming distinct layers, suggesting an extended period of use. One large, long-lived tomb, A 22 (Rast and Schaub 1980), included six articulated burials, three of those associated with the remains of what may have been a pallet or bed made of poles and matting, possibly connected with the transport or laying out of the deceased. All other burials, including 161 skulls, were disarticulated and clustered in piles along the external and internal walls.

## Discussion

EB IA disarticulated burials have been interpreted as indicating periodic visits to the site by non-sedentary groups (Schaub 1981b: 81; Khazanov 1984; Dever 1987), with the dead transported in a decomposed state. However, Palumbo (1990: 122) makes the point that many sedentary communities also practise disarticulated burial. In fact, discrepancies between

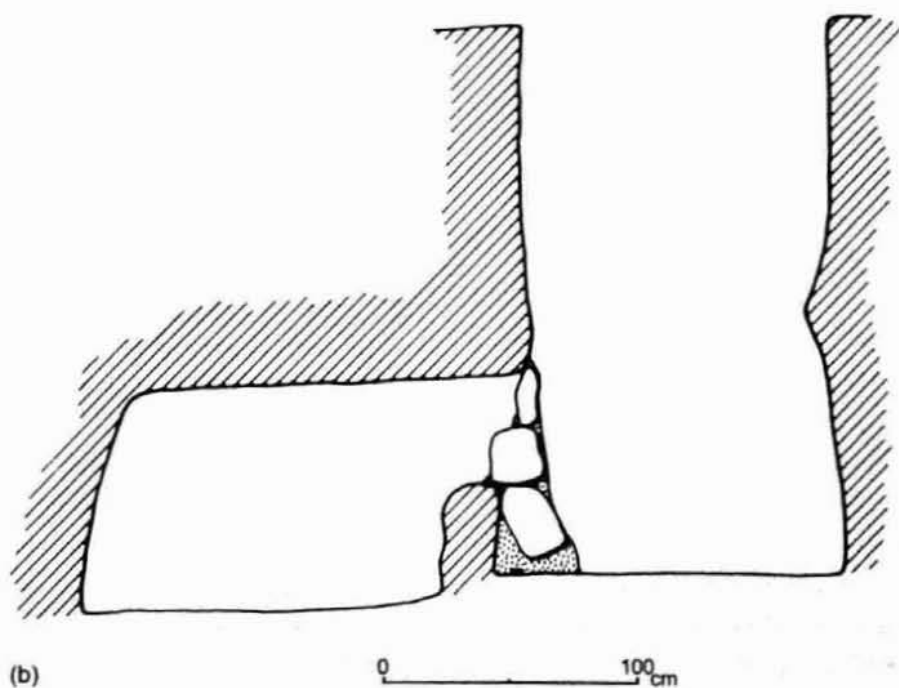
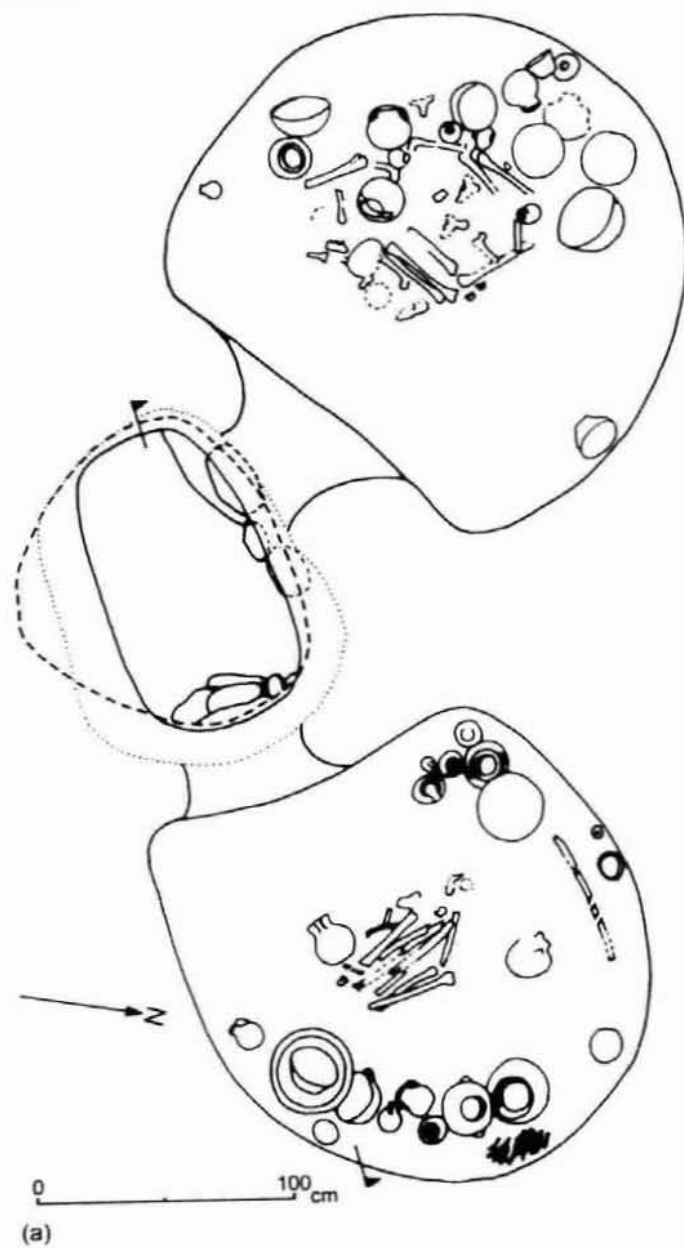


Figure 5.8. Bab adh-Dhra' Tomb A76, an EB IA shaft grave: a. plan; b. section (drawn by Y. Beadnell).



Figure 5.9. Bab adh-Dhra' Tomb A55, an EB II–III chanel house used for multiple successive interment over an extended period; doorway to left of picture, blackened area beyond scale produced burnt linen cloth covering pottery and bones (photo by R.T. Schaub).

numbers of skulls and long bones recovered from individual tombs at Bab adh-Dhra', and the stylized arrangement of both skeletal material and artifacts (see also Jericho Tomb A 94 [Kenyon 1960: 20] and an EB I tomb at 'Ayn al-Assawir in Palestine [Mazar 1990:98]), appear suggestive not of mobility, but specific practices involving human remains. The handling, movement, even veneration of ancestral remains are phenomena well documented in both the ethnographic and archaeological literature from other parts of the world (Barrett 1988). Anthropological research (Van Gennep 1960; Turner 1969; Bloch 1971) suggests that structures designed for long term reuse, allowing regular access to the community of the deceased, would permit the symbolic presence of the ancestors to be drawn into the world of the living. Thus, tombs would provide foci for links with the ancestral group, suggesting that the interment of an individual was understood as part of a process, a link in a chain. The maintenance of an ancestral unit would help explain the sheer number of individuals interred within single funerary structures, and it seems reasonable to suggest that multiple successive burial was connected to the developing importance of kin-based groups as corporate units.

### *Burial equipment*

This suggestion finds support in the stereotypical nature of the grave goods, which are dominated by ceramics, the forms and fabrics of which overlap to a great extent with those of domestic pottery. The rarity of metal goods is particularly striking in the light of evidence for Early Bronze Age copper exploitation at Faynan (Hauptmann *et al.* 1985, 1992; Adams and Genz 1995), and for copper working at individual sites (Rehren *et al.* 1997). The grave repertoire appears to have excluded many forms of artifact. Of particular note is the rarity of those things most closely associated with the marking of individuals in EB IV and Middle Bronze Age graves—pins, jewellery, weapons, meat offerings—items placed close to the body and presumably associated with specific individuals (Hallote 1996; Baxevari 1995; Ilan 1995; Philip 1995b). This might suggest that EBA burial sought deliberately to subsume individuals within the group.

Cooking and large storage vessels are also rare in graves. They do, however, contain a significant number of small bowls and narrow-necked jugs and juglets (Schaub 1996: 234, table 1), best characterized as



vessels for food consumption, and containers for such valuables as oil, wine or scents. Given the apparent significance of oil production to the wider economy, it may be that these vessels and their contents expressed in burial contexts messages concerning access to the critical agricultural resources of land, labour and investment. The attribution of symbolic value to locally produced substances certainly appears consistent with arguments presented earlier concerning a new emphasis upon the mobilization of agricultural products.

The presence of numerous walled settlements alongside 'collective' burial practices lacking obvious wealth differences supports the view that kinship-based groups were the core component of Early Bronze Age social and economic organization. In the absence of convincing evidence for institutionalized elites, it would appear that these groups provided the basis for undertaking major delayed return investments, and working in cooperation could have created material remains superficially akin to those produced by stratified state societies.

The stereotypical form and long-term continuity of collective tombs argue that they were closely involved in the reproduction of the social structure (Barrett 1988), and by providing an ideological context for living corporate groups they may have served to maintain a system of rights and obligations and to provide a legitimating 'past' for current social realities. Mortuary practices may, therefore, have served the interests of an incipient elite by reproducing structures of authority through the promotion of an 'egalitarian' or 'group-centred' ideology, akin to Renfrew's (1974) concept of group-orientated chiefdoms. Such an ideology may have served to play down the reality of growing inequality of access to power and resources, a point perhaps reflected in Chesson's (1999) distinction between 'Greater' and 'Lesser' charnel houses. Differentiated in terms of size, number of burials and range of grave offerings, these appear to provide evidence for growing disparities between the power of different corporate groups during EB II–III. This situation appears entirely compatible with the internal dynamics of heterarchically organized corporate village communities.

### *Built-stone tombs*

Alongside the well-known shaft and chamber graves and the charnel houses of Bab adh-Dhra', there existed a second major category of mortuary structures, built-stone tombs. Those most commonly associated

with the Early Bronze Age are the so-called dolmens (Figure 5.10), which consist of a chamber built from roughly worked stone uprights, supporting a capstone: chambers can be up to 2–3 m in length.

Dating stone burial monuments is difficult as many have been subject to later disturbance and reuse. While it is now clear that cist graves excavated by Stekelis (1935) at Adeimeh are of Chalcolithic date (Prag 1995: 76), several dolmens from Damiyeh, others from Wadi Hisban, and one near Tall al-'Umayri on the plateau south of 'Amman are all of EB I date (Yassine 1988: 51; Dajani 1968; Dabrowski and Krug 1994). A similar date has been also proposed for dolmens located in the Jarash region (Hanbury-Tenison 1986: 245; Sapin 1992: 173). While no Jordanian stone burial monuments have yet been dated to EB II–III, Vinitsky's (1992) observation of the clear spatial association between EB II–III settlements and dolmens in both the Jaulan and Galilee argues that the possibility should not be excluded. Well-documented groups of Early Bronze Age shaft and chamber graves are relatively infrequent in Jordan, in particular when compared to the greater number of such tombs known from later periods, a point which should give pause for thought in the light of Vinitsky's remarks.

The appearance of above-ground mudbrick charnel houses at Bab adh-Dhra', and of underground stone-lined chambers at as-Safi featuring slab-roofs and entered via a short flight of steps (Waheeb 1995: figs. 1, 2), appears to indicate that the simple dichotomy of underground shaft and chamber graves and above-ground built stone tombs is no longer tenable. Further confirmation comes from the presence east of Jarash of tombs in which the chamber is partially rock-cut, but roofed over by a large slab or slabs in the manner of a dolmen (Sapin 1992: 174). Moreover, rock-cut tombs at Tall Handaquq (N) have a distinctive squared recessed opening (Mabry *et al.* 1996: 126) resembling the doors carved on certain dolmens (Yassine 1985; Hanbury-Tenison 1986: 244). The sheer variety of burial monuments brings into question the value of the traditional typological approach to the study of structures 'whose form may not be fixed but rather embody ideas which themselves may be variable and changing' (Bradley 1993: 71–72). The possibility that such potentially long-lived and accessible monuments may have been subject to reinterpretation suggests that rather than defining discrete classes prior to analysis we might do better to emphasize those points held in common among various monument types.



Figure 5.10. Dolmen, Jabal Mutawwaq (G. Philip).

Traditionally, scholars have connected 'megalithic' monuments in the Levant with pastoralist groups (Zohar 1992: 52–55). The monuments tend to appear in clusters that have been argued to show an association with land of limited agricultural value but offering good grazing potential (Webley 1969; Prag 1995). However, Stekelis (1961) believed the large dolmens at ad-Damiyeh, located on a rocky ridge overlooking the az-Zarqa' triangle from the east, were built by agricultural groups exploiting the valley floor below. This case finds some support in the association between the distribution of built stone monuments and of EB I settlements in the area northeast of the Dead Sea (Prag 1995: 79), a point reinforced by the locations of surveyed dolmen fields in Wadi al-Yabis (see Palumbo *et al.* 1990: 480).

The main concentrations of built stone monuments are located along the escarpment and eastern slopes of the Jordan Valley. Monuments extend from the region west of Madaba and Wadi Hisban, and other drainage systems northeast of the Dead Sea northwards through Adeimeh to ad-Damiyeh (Stekelis 1935; 1961; Neuville 1930; Swauger 1965) above Wadi az-Zarqa'. Northwards again, they occur in Wadi al-Yabis (Palumbo *et al.* 1990: 480) and in the hills east of Pella (Watson 1996). However, their distribution is not restricted to the Jordan Valley. On the plateau proper, numerous monuments are located in the area east of Jarash (Sapin 1992; Hanbury-Tenison 1989a) and have been recorded in and around modern 'Amman

(see older literature summarized by Zohar [1992] and Prag [1995]). Distribution is wide and encompasses a variety of environmental zones. However, it is important to remember that we may be observing the pattern of monument survival, rather than an accurate reflection of their original distribution, and their apparent association with 'pastoralist' territory may reflect a far higher destruction rate within the more heavily cultivated areas.

Neither the spatial nor structural distinctions between shaft graves and stone monuments appear as clear as might have been expected, with both dolmens and shaft tombs occurring together at Jabal Mutawwaq (Hanbury-Tenison 1989a: 137–39). The use of monolithic door jambs in Hall 134 at Hartuv in Palestine (Mazar and de Miroschedji 1996) has clear parallels with the design of the entrances to charnel houses at Bab adh-Dhra', stone-lined cists at as-Safi (Waheeb 1995: figs. 1, 2) and houses at Jabal Mutawwaq (Hanbury-Tenison 1989a: 137). The close connections between stone-working techniques employed on superficially different structures raise questions concerning their ascription to distinct sections of the population. Further doubt has been cast upon the simple association of shaft tombs with sedentary groups and dolmens with mobile groups through the excavation of a largely undisturbed late EB I dolmen near Tall al-'Umayri, southwest of 'Amman (Dabrowski and Krug 1994: 241–42). This tomb contained the remains of more than 20 individuals, the earlier burials pushed towards the

rear to accommodate later additions. Thus, the quality of accessibility was common to both stone monuments and shaft and chamber graves, while the grave assemblage compares closely to those of contemporary shaft tombs. A further intriguing aspect of this dolmen was the presence of an area of plaster surface immediately outside the chamber (Herr *et al.* 1997: 153), which might indicate the regular performance of activities outside or even involving the chamber, strengthening possible parallel practices posited for shaft tombs. In fact, the shared features between these two burial forms appear at least as strong as the contrasts.

Before built stone monuments could be securely ascribed to long-range pastoralist groups we would require much better information on the nature of the burial record in the arid zone, an area that would surely have featured prominently in patterns of seasonal movement (Köhler-Rollefson 1992; Garrard *et al.* 1996). In fact, 'megalithic monuments are so widely distributed and so numerous as to suggest that they represented the 'normal' mode of burial for the dead of a large part of the population over an extended period' (Prag 1995: 83). For example, we should not rule out a possible connection between stone burial monuments along the edge of the north Jordan Valley and hill-top settlements in the uplands around 'Ajlun. The use of similar burial monuments by various groups would appear in keeping with the notion of flexible subsistence strategies, and might account for the common features of the two monument types.

### *Early Bronze Age social and cultural landscapes*

The Early Bronze Age saw the incorporation of various novel features within the topography of Jordan: walled human settlements, dams and irrigated fields, orchards, extensive new areas of ploughed arable land, numerous built stone tombs, and presumably a variety of paths and routes whereby people, animals and commodities could move across the landscape. It is important, therefore, to consider the sheer physical impact of Early Bronze Age activity, and the degree to which the pre-existing landscape would have been modified. Recent theoretical discussions (Thomas 1991; Bradley 1993; Tilley 1994) have stressed that humans not only create and modify landscapes but that these, in turn, constitute social and ideological symbols that play a role in influencing people's comprehension and experience of the world.

Thus, while the growth of large Neolithic settlements and the domestication of caprines may have impacted significantly upon the environment

(Rollefson 1993, this volume; Garrard *et al.* 1996), this would have been the cumulative, perhaps imperceptible, result of short-term subsistence choices. The highly visible Early Bronze Age modifications were deliberate constructions, and created a landscape that had been formed by human choices and action, and the development of which was open to day-to-day perception and judgment. From the later fourth millennium BC onwards, the inhabitants of Jordan would have moved within a landscape much of which originated in the Early Bronze Age. Recognizing the way in which the built environment alters, even forms, people's perceptions (Thomas 1991), it can be suggested that the Early Bronze Age sees the inscription into the landscape of both living groups and their past, through the creation of a world in which space was structured by highly visible human creations.

### **Material remains: portable artifacts**

The underlying view of craft specialization held in Levantine archaeology is that it evolved concomitant with increasingly complex and centralized political development (Rosen 1997b: 82-83). However, it is not clear that such a reconstruction can be supported on the evidence from the southern Levant during the Early Bronze Age (Rosen 1993, 1997b). Various criteria have been suggested to distinguish between specialization and basic household-level production (e.g. Feinman *et al.* 1984; Costin 1991). On the basis of such criteria as standardization of form and technique and restricted availability of raw materials, a number of products, such as Canaanite blades and Metallic Ware pottery appear likely to have been produced by specialists for wide distribution, a point reinforced by their suitability for transportation (see below, p. 208, 211).

Specialization in what are in essence utilitarian products, however, generally indicates production for domestic consumption, with certain households or communities producing for other units (Costin 1991: 13). Such a system can function independently of urban communities or elites, and need not be indicative of stratification or inequality. For example, flint blades and Metallic Ware storage vessels were important features of the economy and appear to have been produced in restricted locations. However, they were utilized on a spatial scale far greater than that of any individual polity, suggesting that their distribution lay outside political control.

While craft specialization has generally been seen as an important component of hierarchical organizations,



with the growth of attached specialists working for elites and producing high-status goods seen as a typical facet of complex societies (e.g. Blumfiel and Earle 1987), there is little evidence for high-status manufactured goods from Early Bronze Age Jordan. Nor is there much to indicate large concentrations of manufacturing activities within major settlements. Thus, the data indicate that various segments of the economy were organized quite differently, with significant areas of production and procurement apparently outside the control of political authorities. Yet again, we appear to be witnessing potentially heterarchical relationships rather than a single organizational principle, the city-state.

### Pottery

The basic sequence of Early Bronze Age pottery from the southern Levant has been summarized by Stager (1992). To avoid repetition, this section will concentrate upon specific issues raised by the Jordanian material. Much discussion of Early Bronze Age pottery is framed in terms of a traditional set of ceramic categories. The difficulty is that, while these groups have been defined by twentieth-century archaeologists, they are frequently treated as though these same categories had some kind of living reality in the past, rather than as abstractions created by present-day scholarship (on this problem see Barrett's [1994] comments on the status of the 'beaker' phenomenon in European prehistory). Chronology apart, much of the traditional literature has concentrated upon pottery as a 'cultural' indicator (e.g. Kenyon 1979), or as evidence for interregional contacts (Hennessy 1967; Ben-Tor 1986; Stager 1992: 40–41). Most studies have worked with typologies based upon shape and decoration, with scholars appearing reluctant to move beyond traditional questions and methodologies (Philip and Baird 2000: 3–4). With the exception of the pioneering work of Franken (1974), studies of fabric and manufacturing techniques are a relatively recent innovation, while researchers are only beginning to consider the socio-economic implications of patterns of ceramic production and distribution. However, the various dimensions of pottery as an investigative tool are becoming apparent, and recent work in Jordan has highlighted the accretive multi-component nature of the ceramic assemblages recovered from many sites (Beynon *et al.* 1986; Schaub 1987; London 1991; London *et al.* 1991; Betts 1991: 103–107) and which cannot, therefore, be directly equated with particular local 'cultures'.

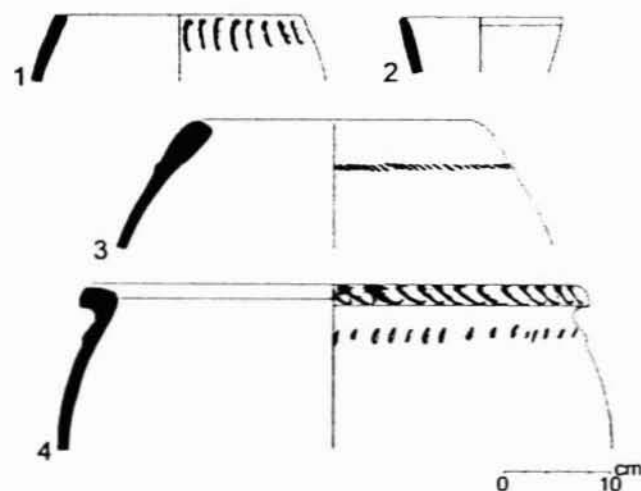


Figure 5.11. Early EB I pottery from Tall ash-Shuna (Baird and Philip 1994: fig. 10).

### EB I

The internal development of the EB I period is particularly well documented in Jordan, with three recently excavated sites having produced clear evidence for two distinct ceramic subphases (Tall ash-Shuna, Tall Umm Hammad and Bab adh-Dhra'), the first two from long stratified sequences of occupational deposits, the latter from tombs.

#### Tall ash-Shuna

The bulk of the early EB I assemblage consists of hand-made vessels in a coarse, poorly levigated fabric, bearing a light orange wash. Shapes are simple conical bowls with straight sides and simple jar forms; decoration is restricted to heavy thumb impressions. Rounded ledge handles, thumb impressed around the edge, are characteristic. Hole-mouth cooking pots show a distinctive calcite temper, beneficial in the control of thermal shock, and may bear impressed ovoids or slashes on the rim (Figure 5.11).

The most distinctive component of the pottery assemblage of the earlier EB I phase in the north is Grey Burnished Ware (GBW), also called Esdraelon Ware, although it comprises but a small percentage of the total repertoire. Vessels have a grey-black, highly burnished surface and are restricted to large bowl forms, sometimes bearing plastic decoration (Figure 5.12.1–2, 4). While traditionally associated with Anatolian emigrants (Hennessy 1967; Stager 1992: 29), more recent interpretations have seen the pottery as a skeuomorphic form linked to basalt bowls (Ben-Tor 1992; Joffe 1993), or perhaps produced in imitation of tarnished silver vessels (Philip and Rehren 1996). Petrographic

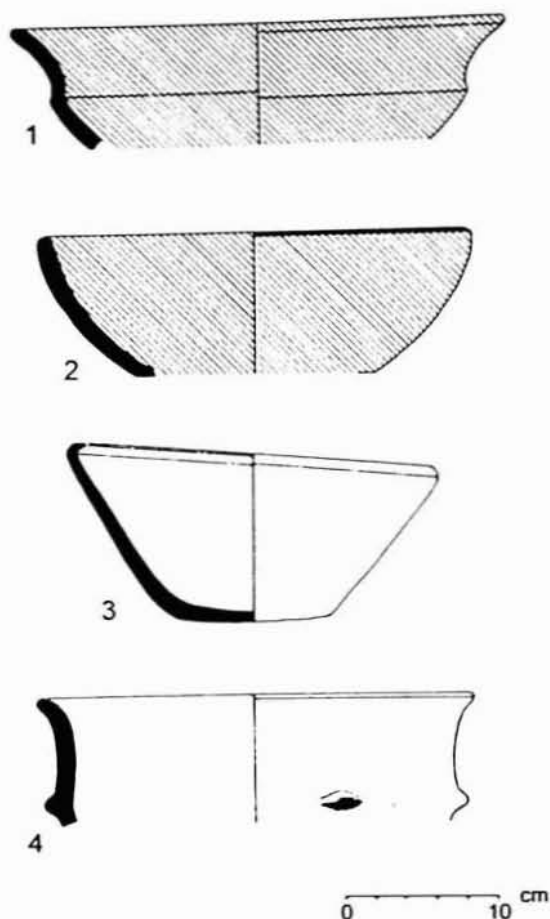


Figure 5.12. Tall ash-Shuna, EB I bowl forms: 1, 2 and 4 are Grey Burnished Ware, 3 is Cracked Ware (Baird and Philip 1994: fig. 11).

evidence suggests that GBW was a specialized product, but manufactured at more than one centre (Goren and Zukermann 2000: 169-70). The vessels are best seen as tablewares connected with the presentation of food and drink, and one might ask whether their appearance is indicative of a new collective dimension to food consumption, perhaps periodic dining in groups larger than that of the individual household. GBW is characteristic of northern Palestine and Transjordan. Its distribution extends to northern parts of the plateau (Kamlah n.d.) but does not reach Jawa. In the Jordan Valley, it occurs as far south as Tall Umm Hammad and at Tall Abu Alayiq near Jericho (Betts 1992: 76-77), but was not reported from the extensive EB I occupations recorded in the Jarash and ar-Rumman regions (Hanbury-Tenison 1987; Gordon and Knauf 1987).

The later EB I pottery from Tall ash-Shuna consisted of large vessels, such as hole-mouth jars and pithoi, bearing bands of streaky red wash known as Band Slip decoration, and small vessels, mainly bowls and closed containers, with red-slipped and burnished surfaces. Hemispherical bowls replaced straight-sided forms, and impressed decoration is less common. New

developments include Cracked Ware (Figure 5.12.3), which appears to represent a late descendant of GBW (Esse 1989b; Rowan 1994). The early and late EB I ceramic repertoires from Tall ash-Shuna have good parallels respectively at Yiftahel (Braun 1997) and 'Ayn Shadud (Braun 1985) in northern Palestine.

In comparison to the industry of the earlier EB I, which is characterized by handmade vessels using a limited range of fabrics, the later EB I material shows a much greater incidence of wheel finishing, a generally higher standard of vessel finish and firing, and a wider range of fabrics employed in a more selective fashion for the production of different vessel forms. Such a technically superior, more diversified industry appears indicative of an increased level of craft specialization, although there is no evidence to connect this with any element of political control.

Band Slip pottery is often described as a 'ware' (e.g. Stager 1992: 30), although it is better understood as a decorative technique. It is distributed across a broad east-west band extending from the north Jordan plateau and the Syrian Hauran (Glueck 1946: 5; Braemer and Échallier 2000: 406) to the Mediterranean coast (Kempinski and Niemeier 1990: x). On the east side of the Jordan Valley it occurs at Tall Abu al-Kharaz and Tall Handaquq (N). While its southern limit appears to lie in the area of Tall Umm Hammad, there are sporadic occurrences at more southerly sites, such as Tall Iktanu (Prag 1993: 269). There is a marked association between this decorative technique and vessels used for storage. However, the technique is not specific to any one vessel form, and in fact continues despite significant changes in vessels styles through time. It appears on hole-mouth vessels in EB I contexts at Tall ash-Shuna and Tall Umm Hammad (Betts 1992: 51-53, 66), and additionally on necked jars with everted and rolled rims in EB II contexts at Tall Abu al-Kharaz and Tall Handaquq (N) (Fischer 1993: 287, fig. 13.5; Mabry *et al.* 1996: 136-38, figs. 8.7-8, 14.4-6). The exact significance of this connection remains to be explored.

#### Tall Umm Hammad

A long EB I sequence from Tall Umm Hammad in the central part of the Jordan Valley (Betts 1992: 17-21) also reveals two distinct ceramic phases. The earlier part (stage 2) includes a large number of hole-mouth jars bearing impressed or slashed decoration along or just below the rim, as seen at Tall ash-Shuna. One particular variant is a group of hole-mouth jars

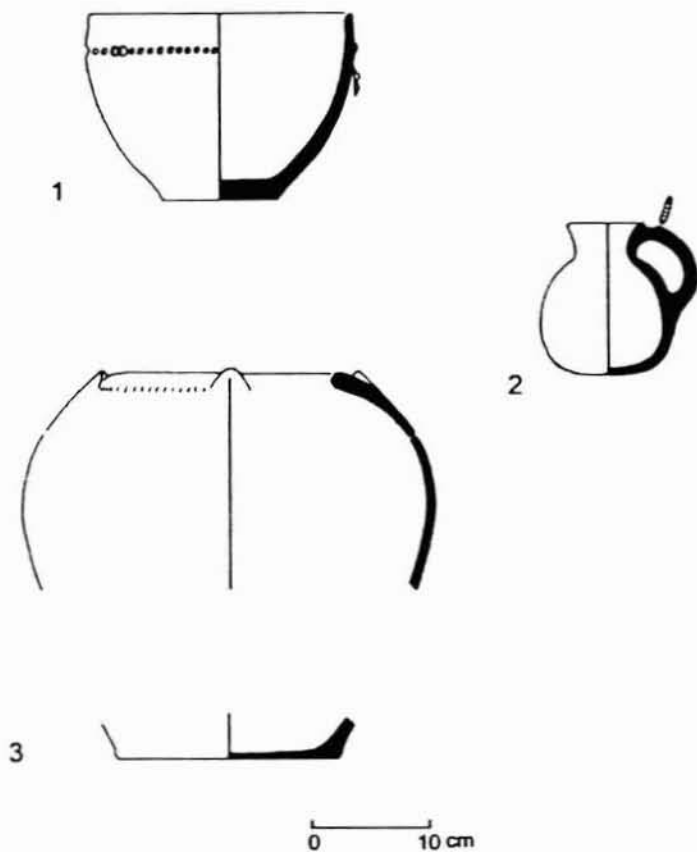


Figure 5.13. EB I pottery (drawn by Y. Beadnell).

1. Bab adh-Dhra', EB IA bowl with conical projections below rim.
2. Bab adh-Dhra', EB IA jug.
3. Tall Umm Hammad, EB IA hole-mouth jar with pushed-up lug handles of a type occurring at sites in Wadi Zarqa' and Jawa in the steppe.

with four pushed-up ledge handles (Figure 5.13.3), apparently produced in a single fabric (Betts 1992: 47). This distinctive form has been recognized elsewhere in the central Jordan Valley (Mabry 1989: 61), in the uplands to the east where it has been used as a chronological marker for early EB I (Hanbury-Tenison 1987; Betts 1992: 48) and as an import at Jawa in the basalt *harra* (Betts 1991: 72), where it provides clear evidence for a connection between the central Jordan Valley and the *badia* during EB I. The physical transport of pottery from the central Jordan Valley to the steppe may well be indicative of patterns of seasonal mobility between these areas (Helms 1987). In this light, the absence of such vessels from Tall ash-Shuna to the north hints at patterns of interaction framed in east–west rather than north–south terms.

Red-slipped and burnished surface treatment appears restricted to loop-handled juglets and small hemispherical bowls, and appears to increase in frequency with time (Betts 1992: 99). Also characteristic of this phase are large GBW bowls (Betts

1992: 76–77, genre 45). Also noteworthy is the presence of what may be a related form, that is, deep bowls with everted rim (Betts 1992: 78–79, Genre 48). These share certain characteristics of size and shape with GBW, but lack the distinctive surface treatment. This raises the possibility that the scholarly concentration upon the colour of GBW may have diverted attention from their real significance, their size and shape. It is possible that scholars have not recognized the functional equivalence of large open bowls generally, including those from such sites as Bab adh-Dhra' where GBW is lacking (see below), and have, thus, underestimated the significance of the widespread adoption of vessels designed for communal food consumption. Perhaps this is the origin of the large platter bowls so characteristic of EB II–III assemblages (see below).

Stage 3 produced a later EB I assemblage, although the exact relationship between stages 2 and 3 remains unclear, owing to the limited excavation area and the possibility of a local stratigraphic break (Philip 1995b: 166). Traits distinctive of stage 3 include a decline in the proportion of hole-mouth jars bearing impressed decoration, with many now undecorated, and the appearance on others of Band Slip decoration. Red-slipped and burnished surface treatments become increasingly common and a number of new shapes appear, including high-necked jars, platters with inverted rims and spouted bowls.

This stage also sees the appearance of the distinctive Tall Umm Hammad ash-Sharqiyya (TUH) ware (Leonard 1992: 83; Betts 1992: 107, repertoire 6), which appears in a heavy red fabric as large bowls and jars bearing multiple applied bands with thick thumb-impressed and moulded decoration (Figure 5.14.1). The distribution of this material during the EB I period is restricted to the central Jordan Valley (see Betts 1992: 56 *inter alia*) with an extension westwards to Tall al-Far'a (N) where it was termed Pré-Urbaine-D (de Miroshedji 1971: 38–40, fig. 14). It was not detected by surveys in districts east of the valley (Hanbury-Tenison 1987; Gordon and Knauf 1987) despite earlier ceramic connections between these areas, and is absent from Pella (Bourke, pers. comm.). Both the appearance and limited distribution of TUH ware suggest that it represents a localized ceramic product, while the range of shapes in which it occurs indicates a connection with storage. The contrast between the limited distribution of TUH ware and the far wider extent of Band Slip decoration highlights the complexity of EB I ceramic patterning



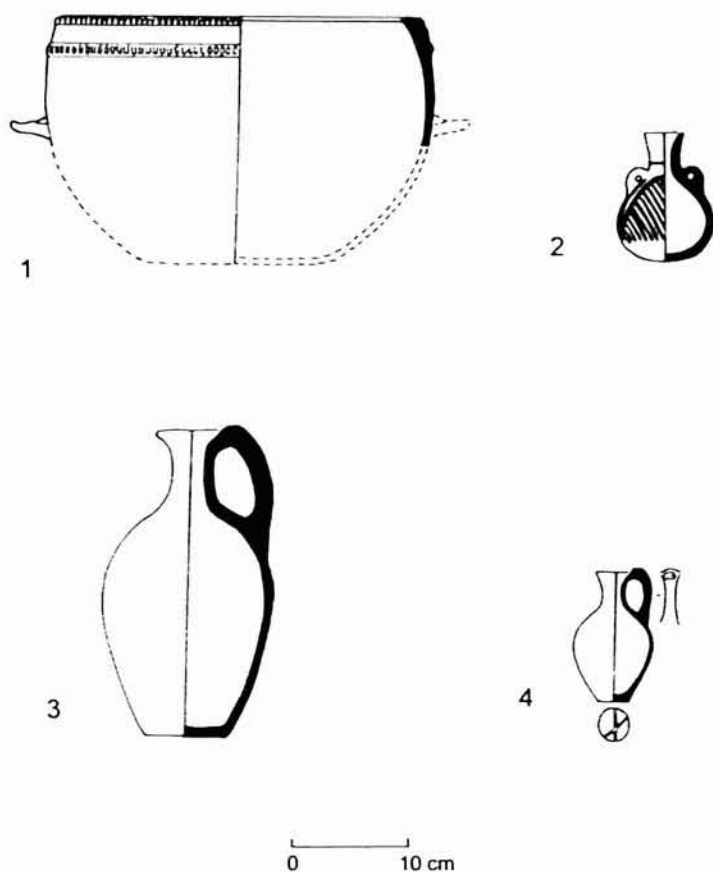


Figure 5.14. EB I and EB II pottery (drawn by Y. Beadnell).

1. Tall Umm Hammad, EB IB, bowl in Tall Umm Hammad ash-Sharqiyya ware.
2. Bab adh-Dhra', EB IB, amphoriskos bearing Line Group Painted decoration.
3. Bab adh-Dhra', EB II, jug, red-slipped, EB II.
4. Tall Abu al-Kharaz, EB II, juglet in metallic ware.

and the need to accommodate the simultaneous operation of a variety of processes at contrasting scales.

Tall Umm Hammad ware proper, and hole-mouth jars bearing impressed and slashed decoration, have at times been conflated by scholars more familiar with the data from Palestine to form a loosely defined group of 'Impressed Slashed Wares' (Stager 1992: 29; Joffe 1993: 39). Hopefully, the discussion above has removed some of the confusion surrounding this issue, and has identified Tall Umm Hammad ware as a distinct ceramic entity.

#### Bab adh-Dhra' and the southern Ghor

The cemetery at Bab adh-Dhra' in the southern Ghor also reveals two distinct phases of EB I use, referred to as EB IA and IB. In contrast to the position at ash-Shuna, the material from the early phase at Bab adh-Dhra' (Figure 5.13.1, 2) frequently bears a distinctive red slip. Ledge handles occur in a variety

of forms and many vessels bear punctured or slashed bands, or horizontal arrangements of small clay projections. The most distinctive northern traits, such as GBW and Band Slip decoration, are absent, and although the pottery shares a number of individual features with that of other EB I sites, the overriding impression is that this represents a local assemblage (Schaub 1987).

The pottery of the later phase shows some similarities to EB IA, although red slips, punctured and slashed bands are all less common. Large jars now have large 'duck bill' ledge handles, while bowls with a 'trumpet' spout appear. Everted-rim bowls, so characteristic in the north, are absent, although deep bowls occur with small ledge handles below the rim. Juglets have round bases and short flaring necks drawn up from body, with handles pulled up higher, and attached higher up the rim than in EB IA examples, although juglets and amphoriskoi with narrow necks do not appear until EB II.

This phase sees the appearance of vessels bearing Line Group painted decoration, which consists of parallel lines of red or brown paint applied directly to the surface of small vessels (Figure 5.14.2). In Palestine, pottery bearing Line Group decoration extends from Ai and Jericho, as far south as Arad (Schaub 1982; Stager 1985; 1992: 29), while its distribution in Jordan embraces the south Jordan Valley (Prag 1989: 38-40), southern Ghor and the south-central plateau (Brown 1991: 173; Dabrowski and Krug 1994). However, the exact significance of this style is not clear, and its very distinctiveness may have accorded it greater prominence in scholarly discussions than it really warrants.

#### The south

The material from southern Jordan suffers from the fact that the non-sedentary subsistence strategies most common in this area tend to produce impoverished ceramic repertoires, although current work on settlements associated with Early Bronze Age copper production in the Wadi Faynan area is sure to revolutionize our understanding of the area. Despite substantial evidence for direct Egyptian involvement in southern Palestine (papers in van den Brink 1992; Gophna 1995b; Levy 1995a), there is at present no indication of a similar degree of contact with southern Jordan, a point that may be relevant to patterns of sociopolitical development in the two regions.

## Summary

While ceramic regionalism is generally taken as characteristic of EBI, the term as traditionally employed amounts to the recognition of a few distinctive features within a complex of cross-cutting ceramic assemblages; some are styles of painting, while others appear to be associated with specific combinations of vessel form and fabric. In reality, it appears that ceramic 'regions' are constituted at different spatial scales. While the material from Bab adh-Dhra' is very distinctive and apparently of highly localized distribution, that from Tall ash-Shuna conforms to a widely distributed 'northern' sphere. Equally, the limited range of fabrics occurring at the first site and the far wider repertoire from Tall ash-Shuna indicate assemblages resulting from rather different patterns of production and procurement. The varied constitution of EB I assemblages may provide a context for the greater, if somewhat uneven, homogenization of ceramic assemblages during EB II.

Certain broad patterns are already clear, however. The main elements of traditional 'regionalism'—GBW, Band Slip and Line Group decoration—are manifest spatially as extensive east–west distributions, but their north–south limits are more restricted. Even pottery of more localized distribution appears to follow this pattern with the four lugged jars known from Jawa and the central Jordan Valley absent at sites both to the north and south, while Tall Umm Hammad ash-Sharqiyya ware appears concentrated along the axis of Wadis az-Zarqa' and Far'a. These ceramic distributions might appear counter-intuitive, in that they cut across natural topographic boundaries, while evidence for the north–south communications along the valley floor or plateau is less apparent. This appears to argue for some wider role for an east–west axis, one that might be connected to growing economic integration between the lowland, upland and steppe regions with their different subsistence potentials. It is also worth observing that, despite the differences in specific styles, many of the key *functional* ceramic categories are present at agriculture-based settlements throughout Jordan, suggesting that a rich and complex network of shared values and practices underpinned day-to-day activities among Early Bronze Age communities.

## EB II

Pottery of this period from Palestine appears to fall into two broad groups, namely, Metallic Wares in the north and 'local' softer, red-slipped and burnished pottery in

central and southern areas (Greenberg 1996:137), a characterization that is broadly applicable to Jordan (Figure 5.14.3–4).

## Metallic ware

Metallic Ware (Greenberg and Porat 1996), though mostly red, can appear buff or grey in thin vessels, and takes its name from the distinctive ringing sound it emits when struck. Vessels were fired to a temperature between 850 and 950 °C, which produces the ware's distinctive appearance and matt surface. Greenberg and Porat (1996) argue, on petrographic grounds, that Metallic Wares from sites in northern Palestine were made from a single clay body originating in the Lower Cretaceous formation, which outcrops at the foot of Jabal Sheikh (Hermon). Metallic Ware appears in a wide range of vessel forms, and contributes 50–70% of the ceramic assemblage at EB II sites as far south as the Jezreel Valley. That a major component of the pottery occurring at northern EB II sites was imported from this source indicates both large-scale production and a significant degree of economic integration. Cooking pots, however, do not appear in Metallic Ware, and were presumably manufactured locally.

Greenberg and Porat (1996: 20) argue that the extensive distribution of Metallic Ware during EB II is connected with changing political structures in northern Palestine. However, there are good arguments against this view. Metallic Ware was utilized on a spatial scale far greater than that of any posited individual polity, while there is now growing evidence from western Asia indicating that significant areas of specialized economic activity were organized independently of the existence of political hierarchies (Stein and Blackman 1993; Wattenmaker 1994; Rosen 1997b). Costin (1991: 13) has suggested that items manufactured by independent specialists tend to be utilitarian, used by most households and available without restriction, while specialists attached to elites tend to produce luxury items and wealth-generating goods. Metallic Ware belongs to the first rather than the second of these categories, while the distinctive concentration of production is simply explained by the restricted physical distribution of the required raw materials, a factor that Costin (1991: 13–15) has acknowledged as playing a key role in determining the basis of production. The distribution of Metallic Ware is probably better explained as the summative outcome of numerous small-scale transactions undertaken at community or household level, rather than

as an indication of any overarching political organization. In this sense, it represents an incremental advance along the trajectory of increasing regional economic interaction that was already well under way during EB I.

Metallic Ware has been reported in Jordan from Tall Abu al-Kharaz (Fischer 1994, 2000; Fischer and Toivonen-Skage 1995), where it appears as platters, jugs and juglets and large storage jars with pattern-combed decoration, Tall Handaquq (N) (Mabry 1989: 79, fig. 10.17), and Tall as-Sukhne in Wadi az-Zarqa' (Chesson *et al.* 1995), revealing the eastward extent of this ceramic form. In the case of Abu al-Kharaz, for which most information is available, the presence of platters suggests that the pottery itself was a commodity rather than simply a container, a point reinforced by the relatively low weights of individual vessels (Greenberg and Porat 1996: 19). Local production remained important at these sites, however, and included a range of bowls, jugs and amphoriskoi as well as large storage vessels, bearing red-painted decoration executed in a variety of styles.

#### Non-metallic wares

In southern Palestine, Metallic Ware vessels are rare (Greenberg 1996: 137) and they have not yet been reported from sites in south-central Jordan, where red-slipped and burnished vessels made in softer fabrics predominate. Here, despite similarities with Metallic Ware in terms of vessel shape, production appears to have been almost entirely localized as exemplified by the material from the southern Ghor (Beynon *et al.* 1986). At Bab adh-Dhra', the EB II assemblage included an increased frequency of narrow-necked jugs and juglets, presumably an indication of the importance of specialized liquid products, and wide shallow platters. High-shouldered jars with short flaring necks and ledge handles appear, a form with parallels at other southern sites, such as Jericho. To some extent the very decline in ceramic regionalism characteristic of EB II is the result of the degree of overlap between vessel forms seen in Metallic Ware and other fabrics, and is presumably indicative of an increasing commonality of economic and social practices. The presence at Barqat al-Hatiye in Wadi Faynan of red-slipped pottery including spouted bowls, necked jars with ledge handles and platters (Fritz 1994) reveals the extent to which a particular set of ceramic forms had become established in domestic contexts throughout the region by the EB II period.

Once more, it is the case that, despite superficial similarities of vessel style, individual assemblages were generated according to specific local circumstances. The degree of flexibility existing within strategies of ceramic procurement suggests that pottery production and distribution was not an arena for political action and played little part in structuring mechanisms of political and economic power.

#### EB III

In general terms, the EB III period sees a continuation of the trend towards greater convergence of regional ceramic assemblages, with one exception.

##### Khirbat Kerak ware

This highly distinctive form of pottery has a soft fabric, resulting from firing at a relatively low temperature. Vessels bear a highly burnished red or black slip, with relief decoration in some cases, and occur in shapes foreign to the ceramic traditions of the southern Levant (Philip 1999: 38-40, figs. 4, 5). While generally seen as the hallmark of the EB III period in northern Palestine, the distribution of Khirbat Kerak ware is concentrated in the northern part of the Jordan Valley (Esse 1991; Philip 1999). The only substantial excavated assemblage from Jordan is that from Tall ash-Shuna, where the wide range of vessel forms, including pot-stands, vessel lids and portable hearths, as well as shapes more typical of the local industry, such as bowl and platter forms (Figure 5.15), suggests the presence of a production centre (Philip 1999: 43).

Esse (1991: table 4, fig. 25) notes that occurrences of Khirbat Kerak ware outside the 'core' area of the north Jordan Valley tend to be restricted to the smaller bowl forms. While this appears to hold in the case of southern sites, the presence of a one-handled vessel at Khirbat az-Zaraqun (Mittmann 1994: 10), part of a stand and a piece of an incised vessel from a tomb at Arqub ad-Dhahr (Parr 1956, nos. 208, 214), suggests that we have much to learn concerning the distribution of Khirbat Kerak ware on the north Jordan plateau.

Scholars have generally interpreted Khirbat Kerak ware in terms of the arrival of new population groups, ultimately of east Anatolian origin (Hennessy 1967: 79; Esse 1991: 139-40). However, there are difficulties with this view (Philip 1999: 35-36), and it is noteworthy that Khirbat Kerak ware lacks many of the ceramic forms most closely associated with the 'classic' Early Bronze



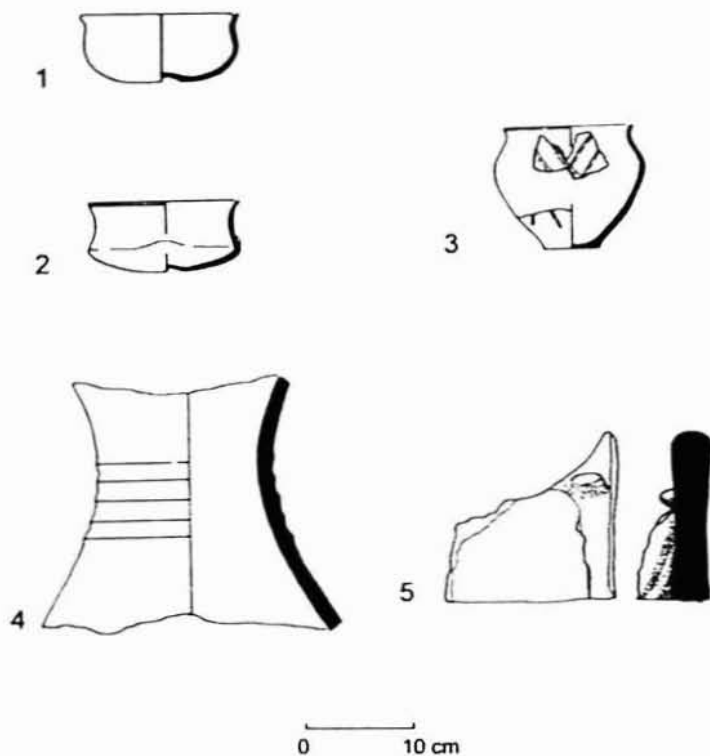


Figure 5.15. Khirbat Kerak ware vessels from Tall ash-Shuna (drawn by Y. Beadnell).

1–2. Bowls.

3. Jar.

4. Pot-stand.

5. Part of portable horseshoe-shaped hearth.

Age agricultural economy—jugs and juglets, storage vessels, large platter bowls—and it has recently been argued (Philip 1999) that scholars seeking to explain the appearance of this pottery should focus upon the functional and socioeconomic status of the user communities.

#### Other aspects of EB III ceramics

EB III pottery in the local tradition is represented throughout Jordan: on the plateau at Khirbat az-Zaraqun near Irbid; at Tall al-'Umayri south of 'Amman; in the Jordan Valley at Tall al-Handaquq (S); and at Bab adh-Dhra' and Numayra in the southern Ghor. Specific forms that appear to be diagnostic of EB III include deep bowls with flattened inverted rims (hammer-rimmed), red-brown slipped and burnished platters with inverted or vertical rims, bearing a small external groove below the rim, and juglets with piriform (pear-shaped) bodies and narrow stump bases, all clearly developments from familiar EB I–II forms.

EB III material from north Jordan is typified by that from the final occupation phase at Khirbat az-Zaraqun. Storage vessels were common, occurring as pithoi around 1 m high (Figures 5.16, 5.17). Some were



Figure 5.16. Khirbat az-Zaraqun, EB III storage jar with loop handles. The style of painted decoration is reminiscent of earlier Band Slip decoration (drawn by Y. Beadnell).

in a fabric resembling what appears to be Metallic Ware and bore vertical combing and horizontal applied rope decoration at the neck. These may represent the continuation in a narrower range of forms of the Metallic Ware of the EB II period. Loop handles are characteristic, with ledge handles better represented at southern sites. The continued appearance in clear EB III contexts of Band Slip decoration on large storage vessels (Genz 2000: 280; see Figure 5.16) has important implications for its use as a dating criterion. Deep-combed inverted rim bowls with spout and loop handles (Figure 5.18.6) may be connected with olive oil production (Stager 1985: 176–77; Esse 1991: 119–24), while the recovery of juglets suggests an association with precious liquid commodities. In what would appear to be a distinctive northern feature, round-based hole-mouth jars appear to have functioned as cooking pots.

In general, EB III material from south-central Jordan (Figure 5.18.1–5) compares well typologically with that from central and southern Palestine (Harrison 2000:

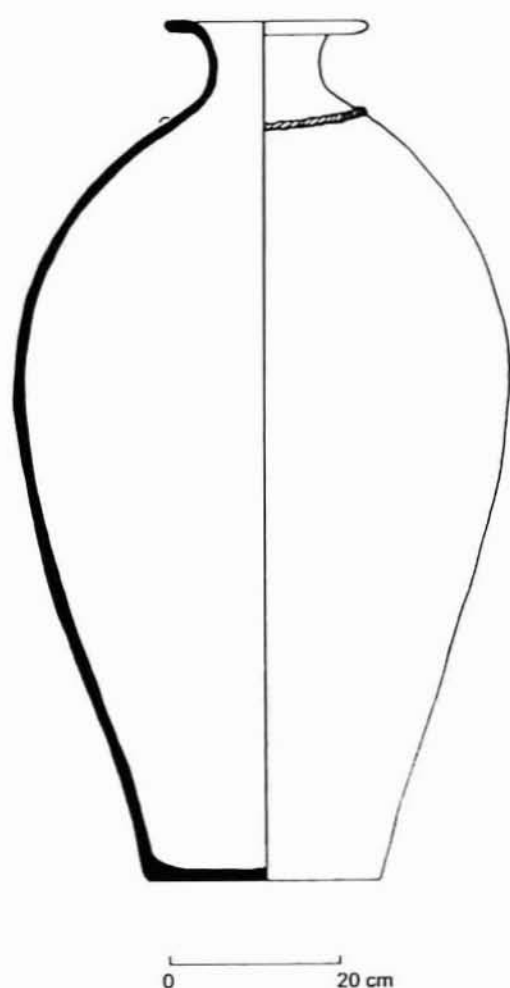


Figure 5.17. Khirbat az-Zaraqun, large EB III storage jar; note that the applied rope-like clay band at the neck lies in the place where a seal impression would be placed (drawn by Y. Beadnell).

360). The EB III repertoire of the central-southern plateau is typified by that from Tall al-'Umayri, and consists of a variety of jars including examples of both flaring and hole-mouth forms, a range of platter bowls, some with inturned rims, and small bowls decorated with vertical bands of red paint (Daviau 1991: 102). Small-medium-sized bowls and hole-mouth jars are dominant numerically, while the use of ledge handles on storage jars, and the presence of jars with a 'combed' exterior bearing a white chalky slip are characteristic of southern sites (Harrison 2000: 353–55). Overall, both northern and southern assemblages appear to represent direct continuations of local EB II traditions, rendering Khirbat Kerak ware all the more distinctive in comparison.

A technical study by London *et al.* (1991) has revealed that at Tall al-'Umayri a range of pot-forming techniques and fabrics were employed for different vessel types, leading London (1991: 394) to suggest that different parts of the ceramic repertoire were

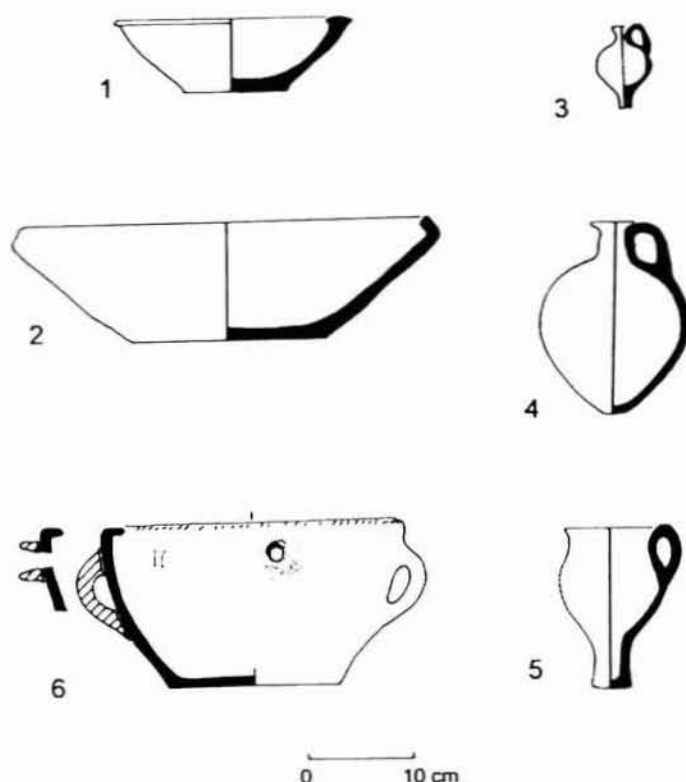


Figure 5.18. EB III pottery from Bab adh-Dhra' (1–5) (drawn by Y. Beadnell).

1–2. Platter-bowls with inverted rim.

3–5. Jug forms with characteristic pointed and stump bases.

6. Khirbat az-Zaraqun, vat, possibly used in the processing of olive oil.

produced by different potters, possibly working on different bases. Petrographic studies of EB II–III pottery from sites in the southern Ghor (Beynon *et al.* 1986) indicate a mainly local production, with some movement of specific products between Bab adh-Dhra' and Numayra, but with little evidence for a significant input of material from outside the southern Ghor area. It is striking that assemblages, which in the case of individual sites develop from the coalescence of a number of different strands of ceramic production, appear quite similar when viewed on a site-to-site comparative basis. This reinforces the idea that the underlying pattern of demand reflected a fairly uniform set of requirements, itself indicative of quite similar social and economic practices.

## Stone

### Chipped stone

Studies of Early Bronze Age chipped stone have focused upon the most distinctive artifact types, the so-called Canaanite blades, and tabular scrapers.

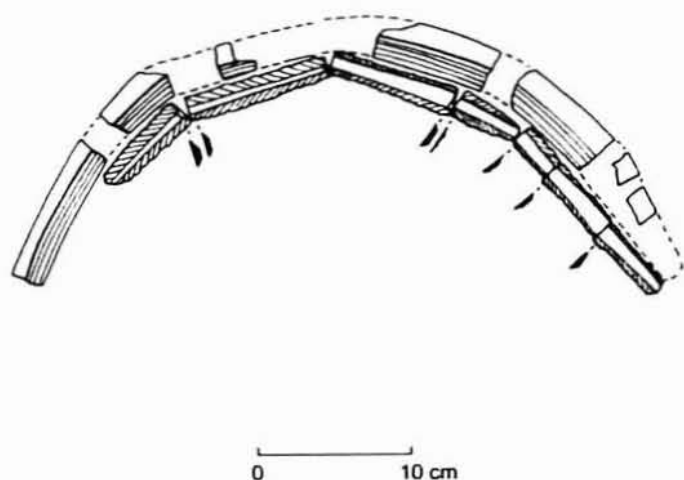


Figure 5.19. Flint blades of Canaanite type mounted in wooden haft, Tall Abu al-Kharaz, EB II (drawn by Y. Beadnell).

### Sickles

The sickle elements known as Canaanite blades were long parallel-sided blades of distinctive trapezoidal cross-section, struck from a prepared, single platform core (Rosen 1997a: 46–49). The resulting long blades could be snapped to produce shorter segments 4–6 cm in length, which were mounted in groups of five to six, set into notches on a wooden handle; a partly preserved example was recovered from destruction debris at Tall Abu al-Kharaz (Figure 5.19; Fischer 1994: fig. 11.4). EB I examples from Tall Iktanu revealed polish on one edge that is believed to be indicative of the reaping of grasses, while the opposite edge frequently bore traces of bitumen intended to fix the blade to a haft (McCartney 1996: 145).

This blade form does not derive from earlier local flint-working traditions, but is related to a technological complex spanning the Levant, north Syria and Anatolia. In the southern Levant, blades are usually made from brown, fine-grained, Eocene flint nodules, and caches of unretouched examples found at several sites in Palestine and at Tall Iktanu in Jordan provide evidence for their distribution as unfinished blades (McCartney 1996: 145; Rosen 1997a: 141). This fact, plus the lack of manufacturing debris recovered from most excavations, suggests specialized production. The absence of evidence for production at major tell sites, with the exception of EB III Tall Halif (Futato 1996), argues, however, that manufacture was not organized by political elites, and that these blades constitute a good example of a utilitarian specialist product produced and distributed independently of political power structures (Hayden 1994: 200). The predominant use

of Eocene flint for blade production appears to confirm Costin's (1991: 13–15) suggestion that (as with Metallic Ware) crafts organized on such a basis may be based upon raw materials of uneven distribution. Rosen's (1997a: 108) point that production was largely based within rural settlements is consistent with such an interpretation, and is supported by their continued occurrence during EB IV (Rosen 1997a: 143), at which point major centres had effectively disappeared.

The site of Bab adh-Dhra', however, produced sickles of a different type, backed blades related to Chalcolithic traditions (McConaughy 1980; Rosen 1997a: 50–51). Yet again, however, evidence for on-site production is absent. Similar tools are found in the arid areas of southern Palestine (Rosen 1997a: 141), suggesting the existence of a separate industry in the south, perhaps a steppe tradition. Despite the evidence from Bab adh-Dhra', Canaanite blades are present at EB III Numayra (McConaughy 1980), highlighting the diversity which underlies the superficial similarity of walled settlements.

### Tabular scrapers

Tabular scrapers (Rosen 1997a: 71–79) are a feature of Chalcolithic assemblages and consist of large retouched flakes, showing the deliberate retention of cortex over most of the dorsal surface. They vary in shape and measure on average 15–20 cm long by 1 cm thick (Futato 1996: 61). The distribution of tabular scrapers appears concentrated at sites in the arid regions of southern Palestine, while known quarry sites are concentrated in the southern Negev and Sinai, although they also occur at more northerly sites (Rosen 1997a: 75). A connection between the long-range distribution of such tools and the activities of pastoral groups has been proposed (Rosen 1997a: 107).

Suggested functions include butchering tools, a fact that may find support in their occurrence in what are interpreted as cult contexts at Bab adh-Dhra' and several Palestinian sites (Rosen 1997a: 74). Others have seen them as tools for shearing wool-bearing sheep (Henry 1995: 372). If correct, this would have important implications for the development of large-scale textile production in the region, and for the nature of the EB I–III exploitation of the arid zones. Whatever the case, it appears that the tabular scrapers and Canaanite blades were produced and distributed on rather different bases, with neither providing evidence for centralized economic direction.



### *Ad hoc* production

In the case of Umm Hammad (Betts 1992: 122-23), on-site flint working appears to have been limited to the fashioning of 'irregular' tools from flakes struck from local cherts obtained as wadi cobbles. Thus, there existed a separation between 'imported' specialized and *ad hoc* tools, produced locally as required, presumably at a household level. The apparent lack of an equivalent element in late fourth-millennium BC, chipped stone assemblages from Mesopotamia (Pope and Pollock 1995) highlights the organizational differences between the economies of the two areas.

### Groundstone

The groundstone industry of the Early Bronze Age has not been subject to a comprehensive study and is often inadequately reported in archaeological publications. However, by analogy with earlier periods (Hanbury-Tenison 1986; Wright 1993), one would expect this to include a substantial body of heavy food-processing tools, mortars, rubbers, pounders and so on. The stone chosen appears to vary according to local availability. There also existed a range of finely manufactured basalt vessels, generally with flat bases and flaring walls that tapered towards the rim (Beebe 1989; Braun 1990). These appear in both grave and settlement contexts (Figure 5.20.2).

However, groundstone appears to offer considerable potential for further analysis, as shown by investigations of the petrology and geochemistry of Early Bronze Age basalt artifacts from Jordan (Philip and Williams-Thorpe 1993). These have revealed, as with pottery, the multi-component nature of the assemblages of basalt artifacts occurring at individual sites, raising the possibility that vessels and grinding tools may have been acquired through different sets of socioeconomic relationships. As far as bowls are concerned, the material found at sites in the southern Ghor appears to originate in basalt flows located around al-Karak, while material from sites in many other areas of the southern Levant appears to have derived from the extensive basalt outcrops in northern Palestine and Transjordan. There existed, therefore, more than one centre of bowl production, the products of which reveal rather different spatial patterning.

### Metals

#### Copper

The most frequently used metal was copper; the repertoire of artifacts is similar to that from Palestine. Weapons occur in a few EB III tombs, and include narrow-bladed daggers with a wooden handle attached by rivets (Philip 1989: 103-104, type 2) and crescent-shaped axes from Bab adh-Dhra' (Figure 5.20.1; Philip 1989: 45-46, type 1). With the exception of a single tin-bronze dagger from Bab adh-Dhra' (Maddin *et al.* 1980: 115), they are all made from unalloyed copper. Characteristic metal tools include flat axes and chisels, along with a variety of awls and other smaller items. Recent finds include an EB II 'hoard' of metal objects from Pella (Bourke 1997), an axe and chisel from domestic contexts at Tall Abu al-Kharaz (Fischer 1993: 285), and a group of EB III copper adzes from Numayra (Rast and Schaub 1980: 44).

Jordan contains major copper deposits in the Faynan area, east of Wadi 'Arabah, ores that were employed at Chalcolithic settlements in Wadi Bi'r as-Saba' (Shalev 1994). Recent work by German researchers has produced evidence for ancient mining and smelting from a variety of periods, including the Early Bronze Age (Hauptmann *et al.* 1985; Hauptmann 1989; Fritz 1994). On-site metalworking is attested at several settlements in the area, including the late fourth-millennium sites of Wadi Fidan 4 (Adams and Genz 1995; Levy *et al.* 1999), while evidence from Khirbat Hamra Ifdan appears to indicate the continuation of local copper working into the late EB III and EB IV periods (Adams 2000: 393). Recent archaeometallurgical research (Hauptmann *et al.* 1992, 1999) suggests that, contrary to previous assumptions, the main source of the copper used at the EB II site of Arad in the northern Negev was not Sinai, but Faynan. This would give a new twist to reconstructions that stress the role of Arad as supplying arid-zone products to settlements of the Mediterranean zone (Finkelstein 1990, 1995b), in that copper from deposits in Jordan would have been a major factor in the development of the regional economy.

Despite intensive archaeometallurgical research (Hauptmann 1989; Hauptmann *et al.* 1992), we still lack a real understanding of the organizational basis of copper extraction at Faynan, although new investigations in Wadi Fidan may change this situation (Levy *et al.* 1999). At present, there is no evidence

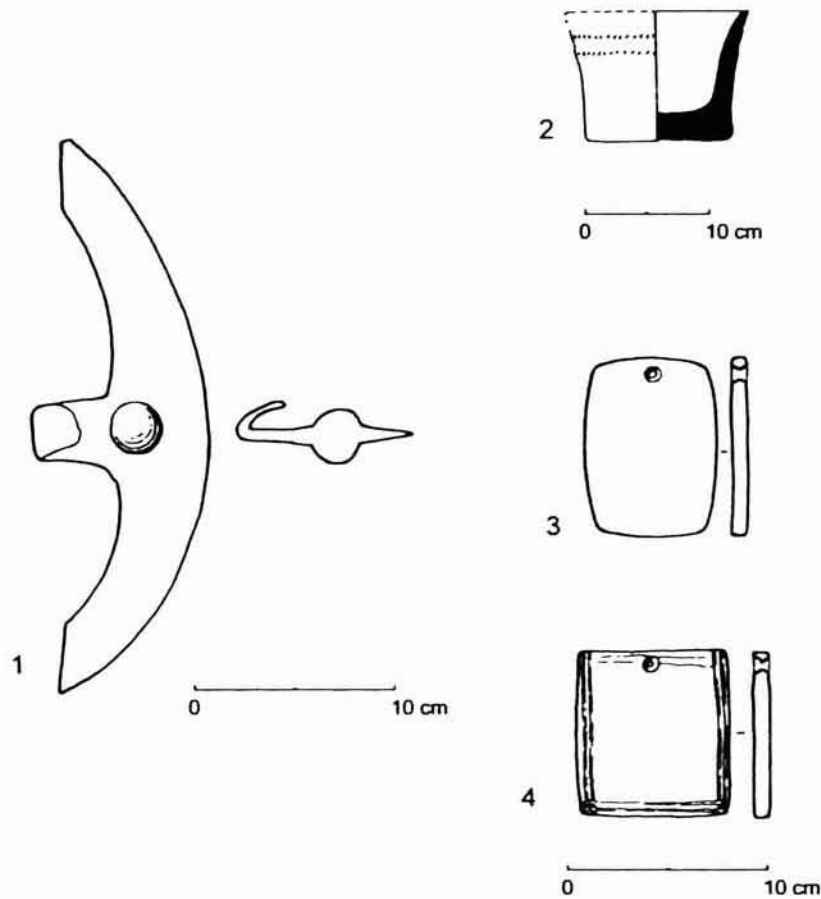


Figure 5.20. Metal and groundstone artifacts from Bab adh-Dhra' (drawn by Y. Beadnell).

1. Crescentic Axe from Bab adh-Dhra', Tomb A 44, EB III.
2. Basalt vessel from Bab adh-Dhra', Tomb A 70, EB IA.
- 3–4. Siltstone palettes from EB II–III graves at Bab adh-Dhra'.

for a major EB II–III centre in Faynan in any way comparable to those known from the north and west. While it is possible that, following the demise of Arad, the role of intermediary between Faynan and the major agricultural areas might have been assumed by centres such as Bab adh-Dhra' in the southern Ghor, this cannot be demonstrated at present. On present evidence, it would be possible to argue a case against any form of clear political control over copper production in southern Jordan and view this as one more instance of interregional economic links, constituted at the level of intercommunity relationships. However, the aridity of the Faynan area may have constrained the development there of the kind of walled settlements characteristic of the Early Bronze Age elsewhere in Jordan, and it is possible that, given the inherent vulnerability of mining, smelting and transportation operations, control over copper resources was exercised in a manner that left little archaeological evidence.

Whatever the role of Faynan as a supplier of copper, it is clear that copper working, as opposed to extraction,

was widely dispersed throughout Jordan, and the notion of a concentration of artifact production in the vicinity of the mining sites (Ilán and Sebbane 1989: 144) must be rejected. In the south, evidence for metalworking occurs at Tall Magass near al-'Aqaba (Khalil 1992: 144), a site that appears to include an Early Bronze Age as well as a Chalcolithic settlement component (Khalil 1992: 143, see illustration in Hanbury-Tenison [1986: fig. 21.3]). At the opposite end of Jordan, a late EB I midden deposit at Tall ash-Shuna has produced metalworking debris including round-based crucibles, small rectangular moulds and metal prills. As would be expected, the evidence seems to indicate the melting and casting of copper, rather than smelting of ore (Rehren *et al.* 1997). Later copper-working evidence comes from Room 15 in the EB III settlement of Numayra (Coogan 1984: 77) and, taken together, the dispersed nature of artifact production and the consistent artifact repertoire argues for widely held culturally determined notions of appropriate forms, that is, the communication and sharing of concepts at a spatial level well beyond that of potential political units.

It would be misleading, however, to assume a single monolithic copper industry deriving all raw material from Faynan. While most published Early Bronze Age artifacts appear to be produced in an unalloyed copper low in impurities, which is generally held to be compatible with the likely smelting products of Faynan ores (Hauptmann *et al.* 1992; Shalev 1994), there are exceptions. The copper recovered from Tall ash-Shuna appears to contain both arsenic and nickel at around 2%, a composition incompatible with any ore yet investigated at Faynan (Rehren *et al.* 1997). Typically, moulds bear matrices formed to cast tools in near-final form, thus reducing the need for subsequent working by smiths. However, those from Tall ash-Shuna appear designed to cast small rectangular copper blocks or thin ingots, perhaps designed for subsequent hammering to form copper sheet, or to produce small billets of standard size for subsequent redistribution. This cannot be attributed simply to north–south differences, as the analysis of copper artifacts from the EB I site of Yiftahel in Galilee revealed the low impurity unalloyed copper traditionally associated with Chalcolithic and Early Bronze Age tools (Shalev and Braun 1997: 95, table 11.3; Shalev 1994). Early Bronze Age copper procurement appears as a more complex and varied process than might have been expected in the light of the ready availability of ores in southern Jordan.

### *Gold and silver*

Both gold and silver artifacts are rare in the southern Levant. Neither metal occurs locally; the nearest gold sources are in Egypt, silver in Anatolia (Moorey 1994). Several pieces of gold leaf jewellery come from EB II–III charnel house A 22 at Bab adh-Dhra', while a group of gold beads and tiny gold spacers appears to belong to a necklace (Rast and Schaub 1980: fig. 14). Silver artifacts are known from late EB I contexts at Tall ash-Shuna (a pin and a fragment of silver sheet) and Bab adh-Dhra' (Philip and Rehren 1996).

Analysis (Rehren *et al.* 1996) has revealed both silver artifacts from Tall ash-Shuna to be artificial alloys, containing a few per cent each of gold and copper, the latter presumably added to harden the metal (Moorey 1994: 238). The presence of gold appears to indicate the use of mixed gold–silver alloys by ancient craftsmen, suggesting that smiths had little idea of the exact nature of their material, and perhaps indicating the presence within the region of a supply of partly recycled precious metal 'stock'. The presence of silver or

gold artifacts does not, therefore, constitute evidence for direct contacts with either Egypt or Anatolia.

### *Seals and sealings*

In recent years, the corpus of Early Bronze Age sealings from Jordan has grown to more than 160, recovered from 15 sites (Vieweger 1997: 151). These belong to a tradition, widespread in the southern Levant, of placing sealings on the shoulders of vessels, just above the point where the neck was joined to the body (Figure 5.21.2). Impressions were formed by rolling a cylinder seal repeatedly to form a continuous band, a practice not so common in contemporary Mesopotamia, but shared with western Syria (Collon 1987: 113).

The sealing of jars would appear congruent with a system of staple finance, in that they would provide evidence for administrative control over commodity storage and transport. In Mesopotamia, however, seals were employed in such a manner as to allow their easy removal and subsequent resealing as required, a process clearly connected with administrative activities (Collon 1987: 113). There is no such evidence from Jordan. Vessels were only impressed once, and this had to take place prior to firing, that is, within the potter's workshop, a far less flexible system from an administrative point of view.

In Jordan, the largest single group comes from Khirbat az-Zaraqun with 143 seal impressions from 118 different seals (Mittmann 1994: 15), the bulk of these found on Metallic Ware vessels. The high ratio of impressions to vessels would seem to argue against an inherent logic within the system. We urgently need more information on the fabrics of the vessels bearing seal impressions in order to assess the strength of the relationship between sealing and Metallic Ware vessels: it is possible that in north Jordan the occurrence of sealings reflects little more than the distribution of Metallic Ware pithoi. Given recent petrographic work (Greenberg and Porat 1996) suggesting that Metallic Ware vessels were manufactured and presumably sealed in a single centre, it is hard to see how such sealings could have been responsive to the specific requirements of administrative practices at individual sites. In fact, while jar sealings may indicate some quality of the vessels themselves (Mazzoni 1984: 32–33), the number of different designs and the long duration of seal usage, with examples spanning the entire EB II–III period, argues against any universal system of 'meaning'.

EB II–III sites in south-central Palestine have produced fewer seal impressions than those in the north



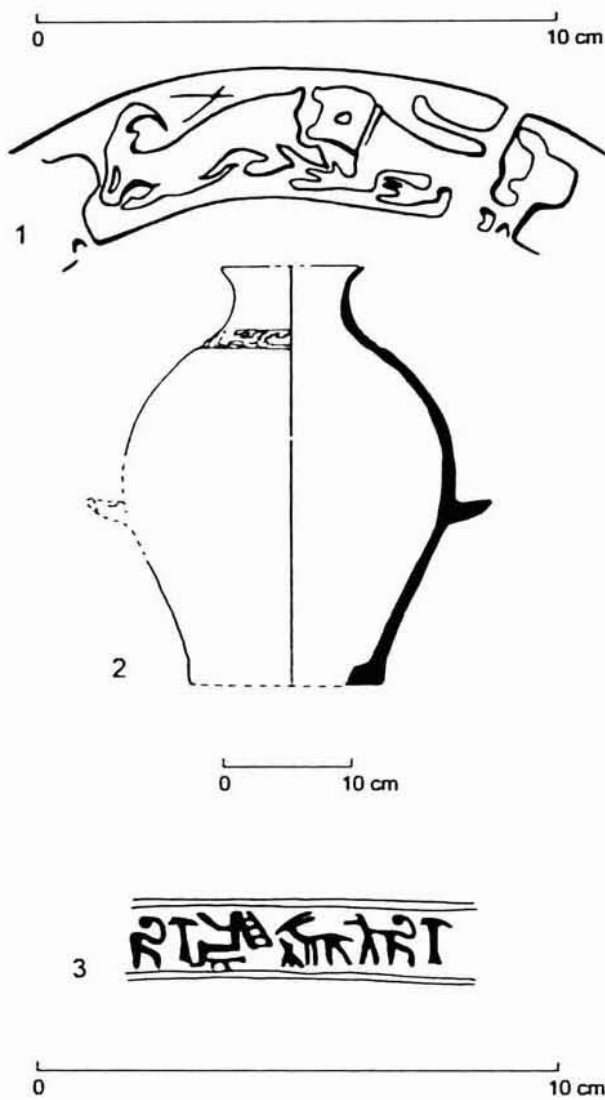


Figure 5.21. Sealing practices from EBA Jordan (drawn by Y. Beadnell).

1. Sealing employing zoomorphic motif, Bab adh-Dhra', No. 1301.
2. Position of seal impression on storage vessel; note how seal has been rolled around the neck of the vessel.
3. Impression of cylinder seal bearing design which includes a seated female figure, Bab adh-Dhra', No. 2823.

(Ben-Tor 1992: 117). In south-central Jordan, however, impressions are known from Tall al-'Umayri (Lapp 1991: 242, fig. 6.23.17) and the al-Karak Plateau (Brown 1991: 179, no. 64), plus a substantial corpus from the southern Ghor (Lapp 1995). The contrast with the situation in Palestine is striking. Even here, where Metallic Ware appears to be absent and pottery vessels may have been manufactured closer to their intended locus of use (see pottery), there is no evidence to suggest the existence of a coherent system of meaning. (For a recent discussion of this topic, see Flender 2000.)

While sharing many general stylistic features with Palestinian sealings (Figure 5.22.1), those from Bab adh-Dhra' suggest additional connections as well. Three seals (one each in ceramic, alabaster and chlorite) and 28 clay impressions have been recovered. One seal is made from pink alabaster of a kind that Lapp (1995: 44) considers of Egyptian origin, although locally carved. A black chlorite seal features a female figure seated before a table (Figure 5.21.3), and shows affinities with Egyptian First Dynasty cylinder seals rather than northern forms (Lapp 1989: 9–10). Other examples have better northern parallels, including one in 'cultic' style from the EB III 'Sanctuary' (Lapp 1989: 6–7). Sealing in Early Bronze Age Jordan cannot be deployed as convincing evidence for complex administrative systems but represents no more than an idea adopted from what Joffe (1993: 56) has termed 'a distant and undifferentiated Syro-Mesopotamian world', stripped of its original meaning and subsequently reinterpreted in a local context.

### Other artifacts

Although a number of additional artifact forms are reported from Early Bronze Age sites in Jordan, the range and variety is quite limited. However, there do exist intersite distinctions in the material, presumably related to the kind of diversity of local practices that might underlie distinctive regional ceramic and architectural styles.

### Bone, clay, shell and stone

Two particular classes of artifact stand out, both of which are frequently treated as *objets d'art* (Ben-Tor 1992: 121). The function and significance of decorated bone tubes, distributed widely throughout Syria and the Levant (Zarzecki-Peleg 1993), remains uncertain. Examples from Jordan, not cited in the aforementioned study, include one from Tall ash-Shuna, probably of EBA date, and several EB III instances from Khirbat az-Zaraqun (Genz, pers. comm.), a largely northern distribution. An EB III bull's head from Charnel House A 21 at Bab adh-Dhra' (Wilkinson 1989: 458, fig. 262. 2) belongs to a group of small carved bovine heads known from EB II–III contexts in Palestine (de Miroschedji 1993b). One might speculate that, lacking other types of animal figurine in the Early Bronze Age, the choice of bovids indicates an association with draft animals and, thus, with agricultural productivity.

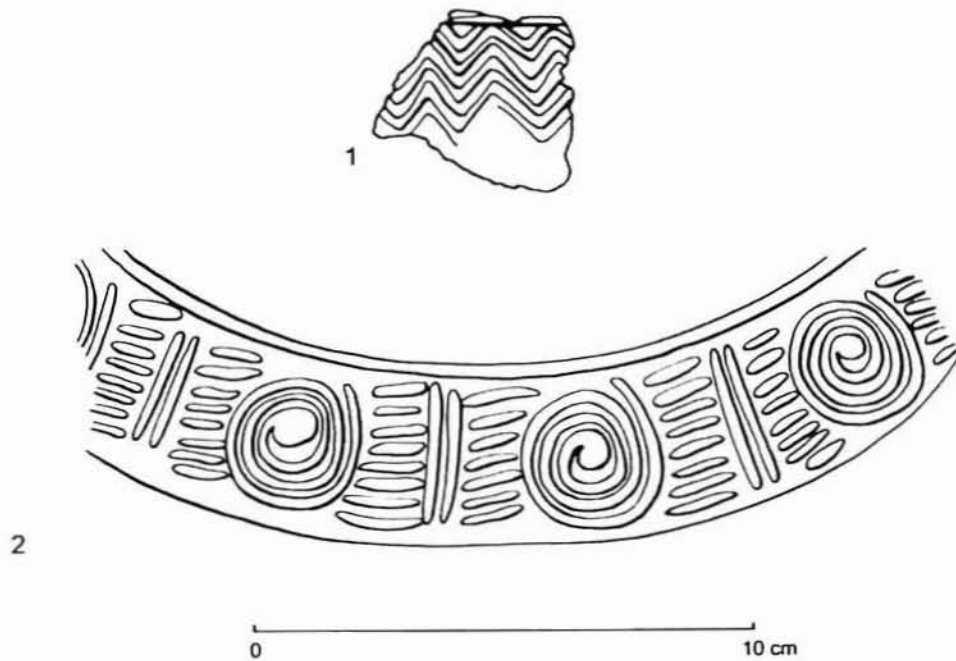


Figure 5.22. Seal impressions bearing geometric designs (drawn by Y. Beadnell).

1. Zig-zag pattern, Bab adh-Dhra', No. 2817.
2. Tall as-Sukhne, EB II; composition: central motif consisting of a row of spirals placed within groups of short horizontal lines, and bordered by lines top and bottom. The motif is framed on each side by a vertical line, thus its repetition as the seal is rolled over the vessel produces pairs of vertical lines, D. 1.8 cm, Ht 4.1 cm (Chesson *et al.* 1995: 120 n. 25).

Unbaked clay figurines with upraised arms are so far unique to graves at Bab adh-Dhra' (Wilkinson 1989) and may represent a phenomenon of particular significance at that site. Contacts with the Red Sea area are revealed through shell bracelets that occur in EB I tombs at Bab adh-Dhra' and at Tall Magass near al-'Aqaba (Khalil 1992: 1.3, 1.6-8). Similar artifacts are found in Palestine, Sinai and Egypt (Wilkinson 1989) and highlight contacts with the arid zone to the south.

Seven 'schist' or 'grey stone' palettes, mostly perforated and of rectangular shape, were recovered from EB II-III graves at Bab adh-Dhra' (Figure 5.20.3-4; Wilkinson 1989: 453-55, fig. 261). These resemble the Egyptian stone cosmetic palettes discussed by Petrie (1921), made from grey siltstone (Klemm and Klemm 1993: 369). Similar palettes are known from Chalcolithic and Early Bronze Age sites in Palestine and are believed to be Egyptian imports (Ben-Tor 1992: 94), although 'local' examples occur in such materials as limestone and granite (Hennessy 1967: 32; Brandl 1992: 447). At Bab adh-Dhra', the apparent lack of palettes in local stone suggests that it may have been important to produce palettes in stones with particular characteristics of colour and texture. Additional examples are reported from the Early Bronze Age occupation at Tall al-'Umayri (Geraty *et al.* 1986: 135).

Jacobs (1996: 130) notes that a number of such palettes found in the southern Levant come from EB III contexts, which would place them several centuries later than their closest stylistic parallels from Egypt, a pattern that extends to those from Bab adh-Dhra'. This apparent chronological discrepancy receives support from recent work at Minshat Abu Omar (Kroeper 1996: 72), where palettes do not occur after MAO IV, that is, First to mid-Second Dynasty (Kroeper 1996: 81-82, fig. 8). Although reducing the gap somewhat, these are still considerably earlier than the EB III dates of some examples from the Levant. Palettes found in the southern Levant are frequently perforated (Wilkinson 1989: fig. 269; Jacobs 1996: figs. 1, 3, 6), which is rarely the case with Egyptian examples, suggesting that this type of artifact may have been reinterpreted in a Levantine context, and may not simply represent the direct adoption of an Egyptian custom.

### Jordan during Early Bronze Age I-III: an image

This chapter has put forward an alternative to the traditional city-state model for the Early Bronze Age. In the absence of evidence for institutionalized elites, it is argued that the distinctive archaeological record of the Early Bronze Age indicates prosperous

village communities, in which a highly developed agricultural base provided the resources necessary for undertaking major projects on a corporate basis. Within these communities, wealth was understood in terms of land and productive facilities, a significant change in the symbolism of power compared to the preceding Chalcolithic.

Kinship-based groups are seen as constituting the basic units of action at subsistence level, with many aspects of the craft production focused upon independent specialists. There is no evidence to indicate that economic and political power were systematically linked in such a way as to offer a basis for sustained monopolistic control. Greater regional interaction over time is attributed to demand resulting from increasing economic specialization, intended to produce additional resources for investment rather than for elite consumption.

There is some evidence from Palestine for growing centralization and inequality during EB III (Joffe 1993: 86–87; de Miroschedji 1999), although this may relate to increasing disparities in wealth and power between different kin groups. However, the outstanding characteristic of this period is the relatively slow rates of change apparent in most aspects of material culture. This may be attributable to the absence of the elite-driven, competitive dynamic that appears so influential in the transformation of society, economy and material culture in later periods (see Sherratt and Sherratt 1991). One might suggest that the evidence from the southern Levant, Jordan in particular, provides a rare glimpse of the form taken by local societies in the absence of the exploitative, conspicuously consuming elites, the presence of whom shaped the material record of later periods in the region.

Occupation at many walled sites appears to have been relatively short, or punctuated, suggesting that they did not represent basic structuring elements of the local economic system. The extent of defended sites along the eastern fringes of the arid zone indicates that walled settlements were not simply associated with communities practising intensive agriculture, but became a symbolic statement, a resource capable of being reworked in a variety of contexts. Walled sites alone cannot be equated with any particular form of political organization.

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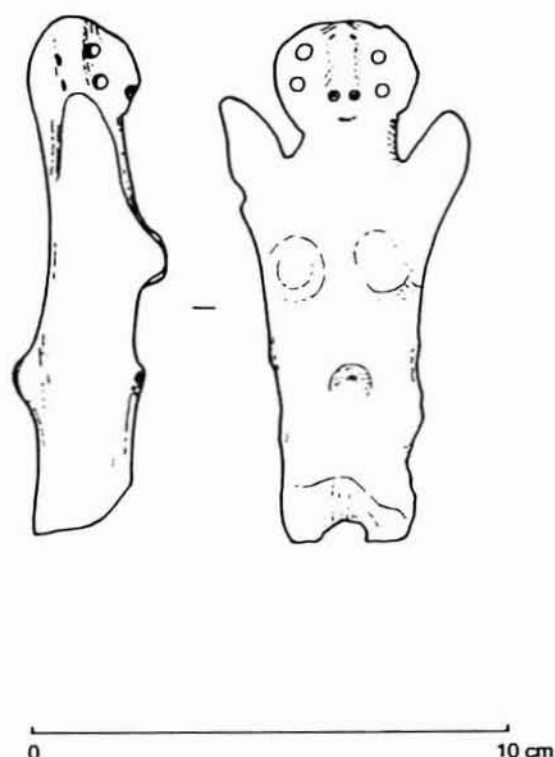


Figure 5.23. Clay figurine, EB I, Bab adh-Dhra', Tomb A 5E (drawn by Y. Beadnell).

and facilitated my research in many ways over the years, and to the British Institute at 'Amman for Archaeology and History (now the Council for British Research in the Levant), which provided both the opportunity and means to investigate many of the issues raised here through archaeological field work at the EB I site of Tall ash-Shuna. Drs Frank Braemer, Herrmann Genz, Kay Prag and Stephen Bourke were kind enough to read and comment upon a draft of this contribution, but bear no responsibility for the final content. I am grateful also to Mrs Yvonne Beadnell, who prepared the line drawings. Finally, I should acknowledge the supportive role of my family, who have shown immense forbearance in the face of sustained archaeological provocation.

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